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PRELIMINARY ECONOMIC STUDIES OF THE WAR

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No. 11

EFFECTS OF THE GREAT WAR UPON AGRICULTURE IN THE UNITED STATES AND GREAT BRITAIN

BY

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EDITOR'S PREFACE

Never before in the history of war has the food question played so large a part as in the present world war. This is true both because a larger area was cut off from production on account of the draft of laborers into the armies, and also because transportation has been probably more difficult than ever before. Undoubtedly, there was a time within the past three years when a large part of the world was on the verge of starvation because of shortage of supplies. Owing to heroic measures adopted by warring countries, and more especially by our own, we avoided this catastrophe.

Of course, the difficulty was seen early by the countries at war and measures were taken not only to increase their own production, but to reduce consumption as far as possible. Before we entered the war we had become, in a large degree, the source of the world's food supply. On our entry the duty of feeding the world lay upon us still more heavily, for we had not only to care for our people at home, but for our soldiers abroad, and supply a large part of the food of our allies. Here, as in Great Britain, the measures were of two kinds, the stimulation of production and conservation in consumption.

At the opening of the war we had no patent plan or policy of national scope with reference to agricultural production nor, indeed, have we developed one. A great deal has been said and written on the subject since the spring of 1917, but much of it was beside the mark and really little has been done to organize our agricultural resources in a large way. Indeed, the matter was one of great difficulty because of the rapid draft of labor from the field. Notwithstanding these difficulties, however, the farmers and other food producers of the country responded nobly and produced results which, under the circumstances, have been very remarkable.

In the spring of 1917 the Secretary of Agriculture, Honorable David F. Houston, called a conference of experts in the field of agricultural production to meet at St. Louis. This conference outlined a program of advice and suggestions to the farmers of the country which contained much wisdom and undoubtedly did great good. Nevertheless, it still remains true that no national policy or national plan has been developed up to the time of writing for the ordering of our agricultural production under the stress of war.

The second great division of our activities in this field has been the conservation of food under the able leadership of Mr. Herbert Hoover. This division of the administrative control of the government has undoubtedly been, in a large way, the most successful of our regulatory efforts. At the same time it was the most difficult. Mr. Hoover's success has been due not only to his great organizing ability, which he showed earlier in so masterly a way in Belgium, but also to his clear comprehension of the character of his fellow citizens. He has relied less on enactments and force than on appeals and explanations. In other words, he has relied on the good sense and patriotism of the people. The people of this republic never fail to respond to such an appeal, but it is only the rare government officer who so thoroughly believes in the good sense of the people in a crisis that he is willing to build his plans confidently upon it. This clarity of vision and this faith Mr. Hoover has shown and they constitute a sign of greatness.

The attempts at price regulation of food producers can not be said to have had any far-reaching results on the situation. Probably they have prevented the occurrence of one or two short periods of acute price fluctuation. Beyond that there is little, if any, reason to believe that they have had a large influence either in stimulating production or steadying the market. Certain it is that many producers have gradually complied with the government's request to increase their acreage even at the risk of no profit, but under the stimulus of patriotism.

This essay of Professor Hibbard's is an attempt to give the main facts of the history of the movement under discussion.

The trend of events will probably make his essay of little use for the purpose of formulating a policy for the purposes of the war, since the war is so near its end. The experience of the past two or three years, however, as described by him, may well teach us a lesson for the future. His discussion should raise such questions as the possibility of a national policy in agricultural production, especially in the more important foodstuffs, the possibility of a permanent system of agriculture, the better utilization of our soil for specific agricultural purposes, the improvement of the condition of the farmer in the more backward agricultural areas, the provision of better opportunities for them to borrow for purposes of improvement, and many other questions of equal importance. The editor believes that Mr. Hibbard's discussion will be helpful in the discussion and solution of such problems.

DAVID KINLEY.

University of Illinois,
November 1, 1918.

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PART I
THE UNITED STATES

EFFECTS OF THE WAR UPON AGRICULTURE

CHAPTER I

American Agriculture before the War

PRODUCTION

In nearly all important respects with regard to foodstuffs America has been not only substantially self-sufficing but a country of surplus. This has been true for many years, both before and during the war. Incidentally we were dependent upon our neighbors for certain commercial fertilizers, and the difficulties attendant upon getting along without them or getting them elsewhere are very great. However, America has been and is a land of surplus food. While this is true beyond all controversy, it is just as true and no doubt a good deal more astonishing to notice that the amount of the surplus has for some years been steadily on the decline.

The occasion for this lessening surplus is not mysterious. Of course if all the land in use were to be used to its fullest extent by the entire population, that is, if the country produced the minimum amount of other goods and utilities, devoting itself exclusively or mainly to agriculture, there would be an enormous surplus of food products. But since the normal course is to produce that which society wants most rather than that for which it will pay relatively little, we have no cause for complaint on account of the failure to make the land produce to its physical and biological maximum. Farmers, both consciously and unconsciously, limit their efforts in accordance with economic returns, instead of in accordance with the limits set by the laws of physics and biology.

America has gone through, perhaps is still going through, a long period of exploitation of natural resources, the primary one of which is the soil. In 1860 there were 13 acres of farm land per capita of population; in 1900 the number had fallen to 11.2 acres; in 1910 to 9.5 acres. Thus at the last census period there was but 73 per cent as much farm land for each member of society as there had been fifty years before.

Nor is the decrease of the number of acres per capita the only way in which the land basis of the food supply has lessened. The quality of the acres taken into the farm list greatly deteriorated with the inclusion of the western part of the great plains and mountain country. This is true in spite of the unusual productive power of the irrigated land, since irrigated land is small in extent as compared with the grazing land of the plains.

As prices of foodstuffs rise, cultivation will, when the labor supply permits, be extended to land not economically available at lower prices. In some instances the land brought later into use may be among the best. This is illustrated in the cut-over country of the Great Lakes forest region, the marsh land of many States, and to some extent in the cut-over lands of the South. But when all is said and done, it must be admitted that about all the good, easily available land of the country has been made into farms, and therefore that increased produce must, in the main, come from more intensive methods. Population is growing faster than acres can be subdued and added to the farm lands. We shall have fewer, not more, acres per capita.

Another view of the same facts may be taken. In 1880 the population of the country was 70.5 per cent rural. In 1910 it was 53.7 per cent rural. Thus the proportion of producers to eaters has been undergoing a rapid change. Actually on farms the proportion is by no means 53.7 per cent, since in this classification there were included in rural population all villages and towns of less than 2,500 inhabitants. The farm population therefore was in 1910, as nearly as can well be estimated, about one-third of the entire population of the country. This is a rapidly decreasing proportion, yet it is still in marked contrast to the very

small proportion of the population of England and Wales engaged in agriculture, where there are but 8 per cent so reported. On the other hand it coincides rather closely with the German situation where 20,000,000 people out of 70,000,000 are getting their living by, or immediately out of, agriculture.

The Leading Crops and Their Importance

The importance of the American food supply to the Allies can hardly be overemphasized. This was true before the United States entered the war, and has been so to an increasing degree since that time. The food question centered in a few articles, mainly wheat, meat, fats and sugar. For the most part the other necessary foods could be produced near at hand; many of them would not stand transportation because of their perishable nature; others are not valuable enough to warrant transportation. It is therefore in point to notice the position of the United States as a food producing country in relation to, and in comparison with, the other Allies. Russia need not be taken into account since she ceased to be a factor in the war about the time the United States entered. The lack of bottoms for use in carrying grain has made it well nigh out of the question to put the supplies of Argentina, Australia, or India at the disposal of the belligerent nations. Thus the problem has resolved itself into the matter of getting from the United States and Canada the necessary supply of food for Great Britain, France and Italy.

Looking upon the Allies as a group it is obvious that the United States and Canada are the countries which are able to provide the additional food which is needed in western Europe. The leading crops such as the cereals, potatoes and sugar reduced to calories as a common denominator, are produced by the countries involved in widely differing amounts. In millions of calories the per capita production is as follows:¹

Canada	6.30
United States	4.63
France	1.79
Italy	1.00
United Kingdom	.56

¹ Finch and Baker: *Geography of World's Agriculture*, p. 8.

The total food values produced in the different countries are not in the proportions represented by these figures since there are many vegetable foods not here included. Again the great excess above needs (a million calories represent the fuel value of ten bushels of wheat) produced in the United States and Canada does not appear in the form of human food. A great part of the cereals is fed to live stock, and in the meat and dairy products resulting the food values are greatly reduced. However, for comparative purposes the figures serve fairly well since all the nations involved eat food of similar variety. To the extent that they eat more bread and vegetables and less meat the comparison fails to give a true picture. At all events it is clear that the United States and Canada are countries of abundance of food, while the three Allied countries of Europe are dependent on the outside world. The situation with respect to the supply of foods over which there is great concern on account of shortage in Great Britain, France and Italy, namely wheat, meat and sugar, will be sketched separately. Other grains such as corn and oats enter into the problem in an important way since great quantities of them are needed in Europe, yet furnishing these grains is only a matter of transportation, since they are abundant. They are not overabundant as the high prices indicate, yet withdrawing from America the quantities needed in Europe would not act as a great disturbing influence in the market here.

Wheat. In normal times Great Britain, France and Italy import about 313,000,000 bushels of wheat. This supply comes largely, but by no means exclusively, from the United States and Canada. Under the conditions existing since the beginning of the war in 1914 the supply has come more and more from these two sources. Ordinarily the United States and Canada furnish for export about two-thirds as much wheat as the three European Allies import. Under war conditions the production of wheat by the Allies has been greatly reduced, notwithstanding the slight increase in Great Britain. On account of bad weather the supply of American wheat has been hardly above the amount required at home for normal consumption during the two years 1916 and 1917.

The position of the United States as a wheat producing nation in comparison with the world output of wheat is of interest. Prior to the war, the world production of wheat per year averaged about three and a half billion bushels. Table 1 gives world production, with that of the United States, from 1909 to 1914.¹

TABLE I
WORLD PRODUCTION AND UNITED STATES PRODUCTION OF WHEAT, 1909-1914

	World Production, Bushels	U. S. Production, Bushels
1909	3,582,000,000	683,000,000
1910	3,575,000,000	635,000,000
1911	3,552,000,000	621,000,000
1912	3,792,000,000	730,000,000
1913	4,127,000,000	763,000,000
1914	3,586,000,000	891,000,000

The United States wheat crop of 1914 was the heaviest ever known and constituted almost one-fourth of the world's crop. Following as it did rather heavy crops for the two years preceding, the amount of wheat on hand at the outbreak of the war was by far greater than normal.

Corn. The largest item of the food supply of the United States is, viewed from one standpoint, corn. So far as food actually eaten is concerned, corn does not occupy a very important place. It is from the standpoint of intermediary use that it looms so big. Corn is the basis of pork production and a prime factor in the feeding of other live stock. The amount produced per capita increased rapidly till about 1879, reaching 35 bushels at that time. Until 1899 the per capita production was substantially unchanged, but since 1899 it has declined appreciably. In 1909 it had fallen to 27.7 bushels, and remained at a point not far different from that for several years. The real significance of the corn crop is that it is the limiting factor in the production of meat, particularly of highly finished beef and pork such as the American market has for years demanded.

From the standpoint of world production the United States occupies the predominating position with respect to corn, producing from two-thirds to three-fourths of the world supply. In

¹ *Yearbook*, Department of Agriculture, 1917.

1914 the world production was, according to the reports, 3,878,000,000 bushels, of which the United States produced 2,673,000 bushels or 69 per cent.¹ For acreage and yield for 1910 to 1914 see Tables II and III below.

Oats. The production of oats in the United States, in terms of bushels, ranks next to corn. In value oats rank normally below wheat. The acreage of oats has increased more, relatively, during the past forty years than have the acreages of either corn or wheat. The per capita production, therefore, shows a correspondingly greater increase over a considerable period of years than is the case with the other cereals mentioned, but reached its maximum in 1889, 12.9 bushels. The decline since that time has, however, been very little. In 1914 the per capita production was over 12 bushels.

In the world's supply of oats the United States ranks first, producing over one-fourth. In 1914 the world crop was 4,035,000,000 bushels, of which the United States produced 1,141,000,000 bushels, or 28 per cent.² The importance of the oat crop is largely indirect so far as food is concerned since no considerable part is eaten. However, as a war commodity oats play an important rôle as feed for horses. The Allied countries are deficit areas with respect to oats and while the United States and Canada can furnish oats in large quantities if called upon for them, under normal conditions they are consumed at home.

*Other Cereals.*³ None of the other cereals enter greatly, either directly or indirectly, into the food supply of the United States. As a barley producing nation the United States ranks second only to Russia, but even so the production in this country is normally under 200,000,000 bushels per year, or only about a quarter that of wheat, and not a tenth that of corn. Barley does not enter greatly into the food of the people of the United States nor of the European Allies.

¹ *Yearbook*, Department of Agriculture, 1916. The *Geography of the World's Agriculture* estimates the proportion produced by the United States at 71 per cent.

² *Yearbook*, Department of Agriculture, 1916. For the acreage and yield from 1910 to 1914 see Tables II and III below.

³ For acreage and yield see Tables II and III below.

Rye is undoubtedly the most satisfactory bread grain besides wheat, but is not grown extensively in the United States. Had all the rye raised in the United States in 1914 been made into flour it would not have amounted to more than about eight pounds per capita.

Buckwheat, usually classed as a cereal, is of still less importance than rye, the total product amounting to but about one-sixth of a bushel per capita. Rice is used in greater quantity than it is produced within the country, a considerable amount being imported.

Other Food Crops. One of the most important food crops other than the cereals is the potato. The normal potato crop of the country ranges from 300,000,000 to 400,000,000 bushels, it being a crop which varies widely according to weather conditions. To this may be added the sweet potato crop of 60,000,000 to 75,000,000 bushels. Thus there are produced from three to four bushels of Irish potatoes, and somewhat less than three-fourths of a bushel of sweet potatoes per capita. Potatoes normally enter but little into international trade.

Compared with that of other countries the potato crop of the United States is not large. The world crop is over 5,000,000,000 bushels, of which the United States produces but about 7 per cent. This is less than the amount produced in France, and not greatly more than the amount produced in the United Kingdom. From the standpoint of the World War the potatoes produced by the Allies are important, but it is in Germany that potatoes are of primary consequence. Germany produces 30 per cent of the world crop.¹

Sugar. No doubt the most important crop other than the cereals is sugar. The United States, including island possessions, produces from two to two and a half million tons, or four to five billion pounds, annually. This is about half of the amount consumed, the additional amount coming mainly from Cuba. The other great importing country is the United Kingdom, which takes one-fourth of the total world exports. France and Italy, during normal times, taken together, produce a little more sugar

¹ Finch and Baker: *Geography of the World's Agriculture*, p. 68.

than is needed for home consumption. While the United States under normal circumstances is not greatly concerned either as a buyer from or seller of sugar to the Allies, the situation is now changed, and with the European supply mainly cut off the Allies are obliged to get their sugar in large part from Cuba, which is also the source of the American importations. In this round-about manner the supply of sugar for American use is seriously reduced.

While nearly half the sugar used in the United States comes from foreign countries, mainly Cuba, another fourth comes from island possessions, leaving approximately a fourth to be produced in the continental United States. Somewhat more than half of the home grown sugar is from beets. In 1913-14 the beet sugar production was 733,000 tons, cane sugar within the United States 300,000 tons, cane sugar from island possessions 1,199,000 tons.¹ The production of beet sugar was begun in earnest about 1890. In 1906 the beet sugar production exceeded the cane sugar production, and has done so ever since. (See Tables II and III.)

Cotton. The cotton crop is sometimes second and sometimes third in value of all crops, it being exceeded uniformly by corn and part of the time by hay.

Cotton is the most important commercial crop of the country, outranking corn in this respect because of the fact that substantially all cotton is sold as such by the producer, while corn has many uses, and is turned into other products without leaving the farm.

Three-fifths of the world's supply of cotton is grown in the United States. The yield ranges from 10,000,000 to 16,000,000 bales per year varying greatly with weather conditions. For example, the average yield for the United States in 1910 was 170.7 pounds per acre, while in 1911 it was 207.7 pounds. Moreover there were 4,000,000 acres more in 1911 than in 1910. Thus the yield which had been 11,609,000 bales in 1910 rose to 16,000,000 bales in 1911. The latter crop, however, brought the growers \$6,000,000 less than the smaller crop of the year before.

¹ *Yearbook*, Department of Agriculture, 1916.

TABLE II
ACREAGE OF THE FOURTEEN MOST IMPORTANT CROPS, 1910-1914

	1910	1911	1912	1913	1914
Corn	104,035,000	105,825,000	107,083,000	105,820,000	103,435,000
Wheat	45,681,000	49,543,000	45,814,000	50,184,000	53,541,000
Hay	51,015,000	48,240,000	49,530,000	48,954,000	49,145,000
Oats	37,548,000	37,763,000	37,917,000	38,399,000	38,442,000
Cotton	32,403,000	36,045,000	34,283,000	37,089,000	36,832,000
Barley	7,743,000	7,627,000	7,530,000	7,499,000	7,565,000
Potatoes	3,720,000	3,619,000	3,711,000	3,668,000	3,711,000
Flax	2,467,000	2,757,000	2,851,000	2,291,000	1,645,000
Rye	2,185,000	2,127,000	2,117,000	2,557,000	2,541,000
Tobacco	1,366,000	1,013,000	1,226,000	1,216,000	1,224,000
Buckwheat	860,000	833,000	841,000	805,000	792,000
Beans	803,000	.....	.....	.....	.....
Rice	723,000	696,000	723,000	827,000	694,000
Sugar Beets ...	398,000	473,877	555,300	580,000	483,000
Sugar Cane ¹ ..	Not reported	310,000	197,000	248,000	213,000
Total	290,947,000	296,871,877	294,378,300	300,137,000	300,263,000

¹ For Louisiana.

TABLE III
PRODUCTION OF IMPORTANT CROPS, 1910-1914

	1910	1911	1912	1913	1914
Corn — bushels ..	2,886,260,000	2,531,488,000	3,124,746,000	2,246,988,000	2,672,804,000
Wheat — bushels ..	635,121,000	621,338,000	730,267,000	763,380,000	891,017,000
Oats — bushels ..	1,186,341,000	922,298,000	1,418,337,000	1,121,768,000	1,141,060,000
Barley — bushels ..	173,832,000	160,240,000	223,824,000	178,189,000	194,953,000
Rye — bushels ..	34,897,000	33,119,000	35,664,000	41,381,000	42,779,000
Potatoes — bushels ..	349,032,000	292,737,000	420,647,000	331,525,000	409,921,000
Flax — bushels ..	12,718,000	19,370,000	28,073,000	17,853,000	13,749,000
Tobacco — pounds ..	1,103,415,000	905,109,000	962,855,000	953,734,000	1,304,679,000
Cotton — bales	11,609,000	15,693,000	13,703,000	14,156,000	16,135,000
Hay — tons ..	69,378,000	54,616,000	72,691,000	64,116,000	70,071,000
Buckwheat — bushels ..	17,598,000	17,549,000	19,249,000	13,833,000	16,881,000
Beans — bushels ..	11,251,000	.....	.....	.....	.....
Rice — bushels ..	24,510,000	22,934,000	25,054,000	25,744,000	23,649,000
Beet Sugar — short tons.	510,172	599,500	692,556	733,401	722,054
Cane Sugar — short tons.	347,000	361,000	163,000	301,000	247,000

While there is almost without fail a reduction in the cotton acreage following an unusually heavy yield with its attendant lower price it so happened that for the two years preceding the war the acreage and yield were both above normal, with the result that an unprecedented supply of cotton was on hand when hostilities began in Europe in 1914. The crop of 1914 may be considered as then on hand, although not harvested for a few months after the war started.¹ An idea of the growth of the cotton industry may be had from the fact that the acreage increased from 13,000,000 in 1880 to 37,000,000 in 1913. And the importance of the supply on hand in 1914 may be gathered from the figures showing an average yield from 1906 to 1909 of 11,000,000 bales per year, while from 1910 to 1914 this average was 14,000,000 bales. (Tables II and III.)

Animals and Animal Products

It is hardly feasible to treat of farm animals as an entire group even in the most general way. This is true because of the wide difference in value and importance among sheep, hogs, horses and cattle. The difference in the rate of increase in numbers is also fundamental; likewise the differences in the uses to which they are put. They will, therefore, be considered separately.

Horses and Mules. Since horses and mules are kept almost exclusively for the work they do, the numbers correspond very closely to the acreage cropped. According to the federal census report of 1910 the number of horses and mules had increased during the preceding ten years by about 14 or 15 per cent, or almost in the same percentage as the increase in improved land. For some years preceding 1910 the number of horses and mules had increased somewhat faster than the improved acreage. In 1880 there were 23.7 acres per work animal; ² in 1900, 23 acres, and in 1910 there was one work animal to each 20 acres. The numbers of these animals continued to increase so that in all

¹ *Yearbook*, Department of Agriculture, 1916.

² The animals included in the calculation are horses, mules and asses, excluding spring colts.

probability they were fully as numerous in proportion to improved land in farms in 1914 as they had been in 1910. The importance of an abundance of animal power is apparent in view of the lessened man power due to the war, thus making it desirable for one man to use as much machinery as possible. There was no shortage of horses and mules in 1914. On the contrary we were in a position to export as many as were likely to be wanted.

TABLE IV
LIVE STOCK ON FARMS, 1910-1914

	1910 ¹	1911	1912	1913	1914
Horses	19,833,113	20,277,000	20,509,000	20,567,000	20,962,000
Mules	4,209,769	4,323,000	4,362,000	4,386,000	4,449,000
Milch Cows	20,645,432	20,823,000	20,699,000	20,497,000	20,737,000
Other Cattle	41,178,434	39,679,000	37,260,000	36,030,000	35,855,000
Sheep	52,447,861	53,633,000	52,362,000	51,482,000	49,719,000
Swine	58,185,676	65,620,000	65,410,000	61,178,000	58,933,000

¹ Census figures.

Cattle. The cattle question resolves itself into two parts, *viz.*, that of the beef supply, and that of the dairy. However, this distinction can not be made sharply since all cattle enter into the beef supply, and many cows not classed as dairy cows nevertheless contribute somewhat to the supply of dairy products.

The number of cattle per 100 of population has declined very much during the past quarter century. In 1890 there were 90.6 head per 100 of population. In 1910 on a basis of enumeration including a larger number of young stock there were but 58.7 head per 100 of population, or less than two-thirds as many relatively. The discrepancy would be offset in part by the greater size of many of the cattle at the latter date. By 1914 the number of cattle was not over 56.5 per 100 of population.¹

Especial interest centers in the dairy. In 1880 there was one milch cow to every four people; in 1890 one to 3.8 people; in 1900 one to every 4.7 people; in 1910 and also in 1914 one to every 5 people. That is to say, each cow in 1914 supplied dairy products to one additional person as compared with the situation

¹ *Yearbook*, Department of Agriculture, 1916. It is assumed that the population at that time was 100,000,000.

in 1880. This does not mean that the supply was necessarily shorter in the latter year than in the former. The increased production per cow during that period of time might and perhaps should have been able to take care of the additional person. The statistics of dairy products are not sufficiently accurate to show with any exactness the facts of this estimate. However, as shown below, the exports of dairy products would suggest strongly that we have, during the past ten years, been producing a gradually decreasing surplus of dairy products. (See Table VI.)

Hogs. The number of hogs in the country is usually about the same as the number of cattle. In 1880 the number of hogs was 50,000,000 which was equal to 99 for every 100 of population, or almost one hog per person. During the next thirty years the number of hogs failed to increase as fast as population increased, until in 1910, the number reported, 58,186,000, equalled about 63 per 100 of population. The number of hogs in 1914, 58,993,000, was hardly above that of 1910 indicating a further reduction in proportion to population to about 59 per 100 people. Thus there were at the beginning of the war about 60 per cent as many hogs in proportion to population as there had been in 1880. There were, however, hogs enough to furnish great quantities of pork for export, the home consumption being no doubt distinctly limited by the price. (See Table VI.)

Sheep. The United States can hardly be called a great sheep producing country, and in proportion to population and improved land has become less so during the past thirty or forty years. Among the nations of the world the United States ranks fourth in number of sheep, Australia holding first place, Russia second, and Argentina third. These three countries have, together, nearly five times as many sheep as are kept in the United States. Until some thirty years ago, sheep were kept in this country primarily for wool. Since that time, the importance of mutton has increased relatively as compared with wool and as a result the great majority of the sheep are of the mutton breeds.¹

¹ Finch and Baker: *Geography of the World's Agriculture*, p. 136.

In 1880 there were in the country 35,192,000 sheep or 70 for each 100 people. In 1900 the number of sheep was 61,504,000 or 81 per 100 people. The highest number was reached in 1903, 63,965,000, after which there was a steady decline. In 1914 there were 49,719,000 or 48 per 100 people. From the standpoint of meat production sheep have never occupied a very important place in the United States.

Wool. Closely associated with the sheep industry is that of wool. The United States has been for many years, if not always, a deficit area with respect to wool. The usual importations have been heavy, two to three hundred million pounds annually. For the year 1913 the amount of wool available for home use was 540,500,000 pounds, about 55 per cent of which was home grown.¹

Conditions were not favorable for the encouragement of the sheep and wool industry for some years prior to the war. Wool could be bought at reasonable prices from other countries, even after paying the tariff. The western ranges were producing fewer sheep from year to year owing to the inroads made by homesteaders. The prices of wool and mutton were not sufficiently high to coax many farmers anew into the sheep business. Thus at the beginning of the war, the United States was not only in no shape to provide an added amount of wool for the Allies, which they wanted, but was unable to furnish her own people with much more than half of the customary supply. The result was a greatly increased demand on the part of the United States for the wool from other countries, a demand which they were, fortunately, able to supply. The demand on these countries by America was augmented by a similar demand from the Allies.

The Sheep Business and Politics. The sheep business has usually been in a precarious condition owing to the dependence of wool prices on a protective tariff. The men who plead for a protective tariff on wool do so in the name of patriotism. In time of peace it is founded on an interest in the laborer; in time of war,

¹ United States Department of Agriculture, Office of the Secretary, Circular No. 93.

it is a matter of fundamental preparedness.¹ The Simmons-Underwood Tariff of 1913 reduced the tariff on wool and created widespread unrest in the sheep and wool industry. So far as mutton was concerned it followed the course of general meat prices and therefore suffered no decline. Wool prices, however, suffered a distinct decline, falling, for different grades, 3 to 13 cents a pound.² At the same time, importations were unusually heavy, although no heavier than during several years between 1904 and 1910. Those interested in the wool business were not slow to make as much political capital out of the situation as the case would allow. Every prophecy of the protectionist leaders was in process of fulfilment when the war came.³ The same authority goes on to recommend the enactment of protectionist legislation while the war is on, in order that men overseas may know that they will have work at home when the war is over.

The number of sheep in the country had declined until in 1914 the lowest number, with a single exception, in fourteen years was reached. This decrease in numbers is of course attributed by the disciples of protection entirely to the lowering of the tariff. Secretary David F. Houston has a different version of the case.⁴ He says:

Normally the United States imports from about two-fifths to more than one-half of the wool required for domestic consumption. During the past three years importations have ranged from nearly 250,000,000 to more than 500,000,000 pounds each year, the average being over 300,000,000 pounds. The total consumption of lamb and mutton during the past ten years has increased appreciably. In the fiscal year 1907, more than 9,500,000 sheep and lambs were slaughtered at plants subject to federal inspection. The number now averages about 13,000,000 per annum.

In some sections of the United States there has been a steady decline in sheep production since the earliest statistical reports. This has been true also in every other settled country except Great Britain. The explanation undoubtedly is an economic one. In general, the primary purpose of sheep growers has been to produce wool. This can not be attained profitably on high priced land. Naturally, therefore, with the increase in land values, there is

¹ For example, see Bulletin of the National Association of Wool Manufacturers, 1918, No. 1.

² *Ibid.*, p. 13.

³ *Ibid.*, p. 96.

⁴ *Yearbook*, Department of Agriculture, 1916, p. 30.

a rapid decline in the number of sheep. In Great Britain meat has been the principal product and wool the by-product, and the sheep industry has flourished.

Speaking of the relation of tariff to the sheep industry, the Chamber of Commerce of the United States says:

As with most of our economic problems, sheep and wool were for years quite active in politics, and a low tariff on wool or the absence of any tariff at all was cited as one of the reasons for the lessening number of sheep in this country. This statement, however, does not stand the test of intelligent investigation and analysis; sheep have decreased and increased with equal impartiality under both low and high tariffs on wool. The compelling and universal cause in all countries, which has affected the number of cattle as well as of sheep, seems to be the growing demand for grazing lands and ranges for agricultural purposes.¹

At all events the question of wool became acute soon after the war began and with our entrance into the war, it became evident at once that wool was a commodity of very great military importance, and that with respect to it, the United States was in no sense prepared. On the other hand, the high specific value of wool and the small number of pounds needed per capita meant that it could be brought from other countries, even though distant, much better than many other commodities, such, for example, as wheat.

EXPORTATION

Exports of Grain

Wheat. Ever since the rapid spread of the American population into the upper Mississippi Valley, we have been a great exporting nation. The expansion of the wheat acreage and yield from the close of the Civil War to 1892 was approximately one hundred per cent. At the same time the exports increased from one to three hundred per cent. The exports of 1891 and 1892 were greater than the entire product of 1867 and 1868. In 1891 following an unusually heavy crop, the exportation was for the first time over 200,000 bushels. For twelve years following that date the amount exported remained at a high level, going up and

¹ Chamber of Commerce of the United States, *The Sheep and Wool Industry*, April 26, 1918.

down with the amount produced. During that period the percentage of the total crop exported was also high, twice exceeding forty per cent, and but once going below thirty per cent. By 1903 the tide began to turn. Exports were lower than before both absolutely and relatively. Whereas, in earlier years a crop of over 500,000,000 bushels insured a heavy export, now a 600,000,000, or even 700,000,000 bushel crop is for the most part used at home. Between 1902 and the opening of the war the maximum amount of wheat exported only twice exceeded the minimum amount of the twenty years preceding. In percentage of crop produced the maximum of exports from 1903 to 1913 was in no instance equal to the minimum of the period 1891 to 1902. We were clearly on the down grade as a wheat exporting nation. It happened, however, that circumstances conspired to increase exportations right at the beginning of the war. This will be noticed in the next chapter.

Other Grain. We had never been heavy exporters of the coarse grains, though from 1895 to 1900 important quantities of oats and corn were sold abroad. From 1900 to the beginning of the war such exportations were decidedly small, amounting to but one, two, three or five per cent of the amounts grown. Likewise the exportations of barley were of small consequence, reaching but a few million bushels per year. Exports of rye were never important.

Exports of Cotton

For many years prior to 1914 about two-thirds of the cotton grown in the United States was exported. Sometimes the exports rose to seventy per cent and occasionally fell to about sixty per cent. In quantity the amount exported since 1880 was lowest in 1881-1882, 3,480,000 bales, and reached the highest point in 1913 with 9,376,000 bales. In the latter year the United States exports equalled sixty-three per cent of the total amount entering into international trade. It is thus evident that any disturbance of the movement of cotton from the United States must have a pronounced effect not only on the agriculture of this country but also on the cotton supply of the world.

The following table shows the exports of grain and other vegetable products for the years 1910 to 1914, inclusive.

TABLE V
EXPORTS OF GRAIN AND VEGETABLE PRODUCTS, 1910-1914.
(Years Ending June 30)

	1910	1911	1912	1913	1914
Corn & Corn Meal					
—bushels	38,128,498	65,614,522	41,797,291	50,780,143	10,725,819
Wheat & Flour—					
bushels	87,364,318	69,311,760	79,689,404	142,879,596	145,590,349
Barley—bushels ...	4,311,566	9,399,346	1,585,242	17,536,703	6,644,747
Oats & Oatmeal—					
bushels	2,548,726	3,845,850	2,677,749	33,759,177	2,748,743
Cotton—lbs., (000					
Omitted)	3,206,708	4,033,941	5,535,125	4,562,296	4,760,940
Potatoes—bushels .	999,476	2,383,887	1,237,276	2,028,261	1,794,073
Rye & Rye Flour—					
bushels	242,262	40,123	31,384	1,854,738	2,272,492
Tobacco (Unmfd.)					
—lbs.	357,196,074	355,327,072	379,845,320	418,796,906	449,749,382
Buckwheat—bushels	158,160	223	180	1,347	580
Onions—bushels ..	254,255	234,289	313,299	571,074	386,322
Rice—lbs.	7,049,597	15,575,271	26,797,535	24,801,280	18,223,264
Sugar (Refined)—					
lbs.	125,507,022	54,947,444	79,594,034	43,994,761	50,895,726
Beans & Peas—					
bushels	365,721	288,638	341,268	400,868	314,655

Exports of Animals and Animal Products

The exportation of live animals before the war began, and with the exception of horses and mules since, has been so small as to require little comment. In no case did the exportations mean much either with respect to the number of animals or the amount of money involved. Animal products principally beef, dairy, and pork products are, however, of primary interest in the matter of international trade.

Beef and Beef Products. The exports of beef and beef products grew steadily and rapidly until near the end of the nineteenth century; the high point was reached in 1906. From 1906 to 1914, inclusive, a rapid decline took place until in the latter year hardly more than one-fifth of the quantity of the former year was exported. The occasion for the decreasing surplus is not mysterious. We were producing fewer cattle while population was on the increase. The prospect in 1914 was such that

had not something of a signal character happened the United States would soon have furnished little beef for the people of other nations.

Pork and Pork Products. The exportation of pork and pork products increased steadily from 500,000,000 pounds in the early seventies to nearly three times that amount at the end of the century. From that time to 1914 the quantity exported fluctuated up and down, but on the whole declined to about two-thirds of the amount annually as at the beginning of the twentieth century. During the five years just preceding the war the billion-pound mark had barely been touched once. The decrease in the number of hogs in proportion to population was showing its effect markedly in the export figures. We were exporting appreciably less of these products annually during the years just preceding the war than for twenty years prior to 1910.

Dairy Products. The products of the dairy have not entered into international trade as much as might be expected if only their high values in proportion to bulk be taken into account. The explanation is found without doubt in the fact that in the European countries which might buy such products it has been found that the dairy cow is a much more economical producer of food than is the meat animal, and in consequence they produce their dairy foods even though they buy meat and breadstuffs. Furthermore, not appreciating the food value of dairy products as compared with many other articles of diet great numbers of people feel that they can not afford milk and butter.

Cheese. International trade developed in cheese earlier than in butter on account of ease of handling without refrigeration. We were exporting from 80,000,000 to 120,000,000 pounds of cheese from 1873 to 1893. Following the latter date there was a decline and by 1905 the amount was 10,000,000 pounds. Later it fell to a quarter of that figure and became insignificant. In the meantime we were importing cheese. The first year to show an importation of 10,000,000 pounds was 1893. From this date until the war there was a steady increase, the amount in 1914 reaching 64,000,000 pounds.

Butter. For a time following the rapid development of the American creamery the exportation of butter became important. During the seventies we were selling five or six million pounds a year. By 1885 the quantity had increased to 22,000,000 pounds, and again to 30,000,000 in 1890. The top was reached just before 1900 with 31,000,000 pounds in 1897. The decrease following this date was not very rapid, nor very regular, there being both ups and downs. However, by 1906, which was an outstanding year with more than double the amount in either the preceding or the following year, 27,000,000 pounds, the decline began in earnest. From that time on to the beginning of the war the greatest amount of butter exported was in 1907, 13,000,000 pounds, or less than half as much as in 1906. After 1907 there was not half as much as for that year during peace times. From 1910 to 1914 inclusive the average was 4,478,000 pounds per annum.

Condensed Milk. The trade in condensed milk is of relatively recent development. From 1910 to 1914 inclusive it amounted to a little less than 16,000,000 pounds per year.

TABLE VI
EXPORTS OF ANIMALS AND ANIMAL PRODUCTS, 1910-1914
(Years Ending June 30)

	1910	1911	1912	1913	1914
Cattle—No.	139,430	150,100	105,506	24,714	18,376
Horses—No.	28,910	25,145	34,828	28,707	22,776
Mules—No.	4,512	6,585	4,901	4,744	4,883
Sheep—No.	44,517	121,491	157,263	187,132	152,600
Swine—No.	4,410	8,551	19,038	15,332	10,122
Beef—lbs.	286,295,874	265,923,983	233,924,626	166,483,294	148,487,828
Pork—lbs.	344,182,391	365,480,337	477,377,950	420,893,634	411,231,451
Lard—lbs.	362,927,671	513,974,669	594,573,774	563,803,076	510,781,578
Mutton—lbs.	1,989,472	2,160,259	3,595,543	5,266,019	4,685,496
Wool—lbs.	47,520	Not stated	Not stated	77,077	335,348
Hides & Skins—lbs.	14,635,075	44,594,235	25,246,800	26,160,338	19,867,135
Eggs—doz.	5,325,936	8,558,712	15,405,609	20,409,390	16,148,849
Butter—lbs.	3,140,545	4,877,797	6,092,235	3,585,600	3,693,597
Cheese—lbs.	2,846,709	10,366,605	6,337,559	2,599,058	2,427,577
Condensed Milk— lbs.	13,311,318	12,180,445	20,642,738	16,525,918	16,209,082

CHAPTER II

Crops: Production, Prices and Exports for 1914 to 1918

From the time of the outbreak of the war in August, 1914, to the entrance of the United States into the war in 1917, there intervened two crop years. During these years there were, with few exceptions, sharp increases in prices, and increase in price is undoubtedly the most universally effective force in stimulating greater production. The most remarkable exception to the increase in prices in August, or almost immediately thereafter, was the opposite movement in cotton prices which almost immediately fell, the November price being but slightly over half that of the August price. While the governmental action for stimulating crop and animal production came only after the entrance of the United States into the war, there is so much continuity of influence of the war on agriculture from 1914 on that it seems best to deal with the whole war period as a unit, noting the modifications that occurred after April, 1917, in connection with each topic.

THE LEADING FOOD CROPS

At the outbreak of any war there is an immediate, abnormal demand for food crops and such feed grains as are of use in the army. It is much as though a new group of men and animals were brought within the market influence. Both men and horses do much additional work and therefore consume more. Much is destroyed, used lavishly, or perhaps captured by the enemy. At the same time the productive power of the belligerent nations is reduced in proportion as its man and horse power are withdrawn from peaceful pursuits and used in the armies. Moreover, where several countries which have previously traded among themselves are divided into two belligerent groups the course of trade must

be changed to fit the new alignments. When the war broke out in Europe, in 1914 all countries involved wanted to buy more supplies. It soon developed that a neutral country with vast stores of supplies for sale, but with few ships, could not go on trading in an undisturbed manner with all countries concerned. The shipping of the United States had been very largely in the hands of the belligerent nations and no sooner had the war begun than the German boats were interned and the English boats to a great extent withdrawn for service in connection with the war. Until the submarine became an important factor there were enough bottoms to carry the foodstuffs and munitions to the Allies. In fact the carrying power of the British merchant marine was increased so far as the United States was concerned, since many ships were withdrawn from the Pacific trade in order to take care of the more immediate needs on the Atlantic. This mobilizing of the shipping facilities between this country and the western Allies was a primary factor in the matter of price and exportation of American grain and cotton, and hence a stimulus to production. The leading crops will be considered separately.

Wheat

Acreage, Production and Price. By a fortunate circumstance, hardly more than an accident, the United States had on hand an unprecedented supply of wheat at the beginning of the war, 1914. The crop of 1913 had, with a single possible exception, exceeded in acreage all former wheat crops. The yield per acre was close to the maximum, with a resulting total yield greater than ever before. This record crop was followed by another which exceeded it by an amount greater than the normal quantity exported. The 1913 yield was 763,000,000 bushels, the 1914 yield was 892,000,000 bushels. This meant that we had for the two years an amount hardly short of half a billion bushels above the normal amount consumed.

Wars always create an abnormal demand for bread, with, therefore, an inevitable increase in the price of bread grains. The response of wheat to this condition was immediate. Within

a month after war was declared in August, 1914, the price of wheat in the American markets rose 16 cents per bushel. Yet this was the time of year when a decrease in the price was to be expected.

Probably the general knowledge that war creates a demand for wheat, together with the rise in price already taking place was the primary cause of the increased wheat acreage in the fall of 1914 and the spring of 1915. The planting jumped from 53,500,000 acres in 1914 to 60,400,000 acres in 1915, an increase of 6,900,000 acres, or 13 per cent. Coincident with this unprecedented area sown to wheat came a yield of 17 bushels per acre, distinctly the heaviest yield yet recorded for the country. This gave a total yield of 1,026,000,000 bushels, or about 66 per cent more than the quantity needed for consumption.

This remarkable crop was, as it happened, a part of a record-breaking world crop. Thus man and nature seem to have conspired to hold the price of wheat down for at least another year after it appeared to be destined to rise. The price was lower in the fall of 1915, and till August, 1916, than in the corresponding months a year earlier. The wheat grower was therefore somewhat disappointed, and although other prices had followed the same general trend, the decision seems to have been made in favor of returning to the more usual distribution of acreages among the leading grain crops. The acreage of wheat in 1916 was 52,000,000 acres, or more than 8,000,000 less than for the previous year.

The wheat crop of 1916 yielded 636,000,000 bushels. This was but little more than enough for home consumption assuming that to proceed at the normal rate. The Bureau of Crop Estimates figures the normal rate of consumption at 5.3 bushels per capita and the amount needed for seed at 87,000,000 bushels. Assuming the population in 1916 to have been 100,000,000 it meant 530,000,000 bushels for consumption, and, adding the amount used for seed, a total of 617,000,000 bushels to be used at home and but 19,000,000 bushels for export. The only hope for any considerable quantity to spare was in a lessened consump-

tion. However, since we had not entered the war at that time the furnishing of bread for the Allies had not been accepted as a duty. The hope for exports was in wheat held over, or in a diminished consumption.

The world crop, as well as the United States wheat crop for 1916, was short. Not all countries were included in the estimate, the Central Monarchies, Poland, and Asiatic Russia being omitted, but the amount reported was 2,984,000,000 bushels, whereas the same countries had produced the previous year 3,433,000,000 bushels, a difference of 449,000,000 bushels.¹ Thus at the time the United States entered the war the surplus from the big wheat crops of 1913 to 1915 had disappeared, and the shortage following the small crop of 1916 was beginning to be felt.

In the spring of 1917, when the United States entered the war, the wheat outlook was by no means promising. The condition of wheat according to the Monthly Crop Report of April, 1917, was 63.4, the lowest in twelve years. Moreover, the prospect for an unusual sowing of spring wheat was not good since the prices of other farm products were more attractive. The amount of wheat on hand was small. Since it was already well into the season of spring wheat seeding when war was declared, not much could be done to stimulate production so far as the 1917 crop was concerned. Some more wheat was sown, rather late in the spring, than would have been sown had it not been for the war and the attendant high prices. Even so the acreage was smaller than it had been since 1910, 45,941,000 acres, and was 6,000,000 acres less than the average for the five years, 1911–1915. The small acreage was due largely to the abandonment of a large area of winter wheat on account of winter killing.

The small acreage of wheat in 1917 was accompanied by a light yield, at least lighter than had been the rule for some years, with the exception of 1916. The Monthly Crop Report for December, 1917, gives the estimated yield of wheat as 650,000,000 bushels, but later figures disclose the fact that this amount could

¹ *Yearbook*, Department of Agriculture, 1917.

never be accounted for. Probably 600,000,000 bushels was all that was actually harvested. Thus for the second time following the big crop of 1915 the United States had failed to produce any considerable amount of wheat for sale outside the country, unless it should come from a decrease below the regular amount consumed.

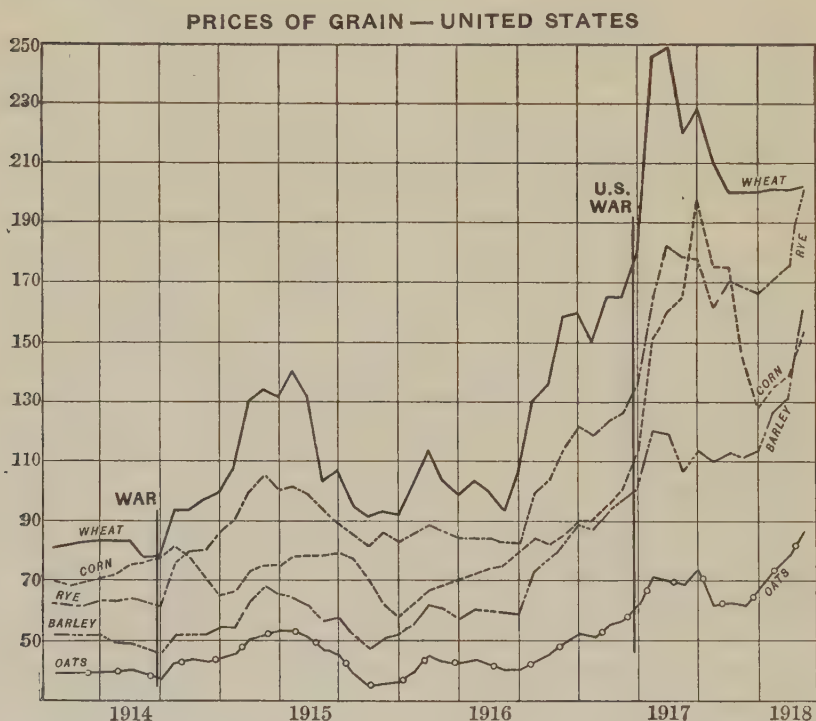


Chart I. Grain Prices Received by the Farmers. The prices of grain rose with the beginning of the war, fell in 1915 on account of big yields, and rose sharply thereafter.

Meantime the prices of wheat underwent a transformation. The Allies were getting short of wheat to an alarming extent and America had little with which to supply the shortage. In the fall of 1916 the price began to rise in earnest. Starting at \$1.07 in August it reached \$1.60 in December, and \$1.80 by April 1,

1917.¹ No sooner had the United States entered the war than the price of wheat went to an unprecedented level. In May, 1917, cash wheat sold for \$3.48 a bushel, and flour correspondingly rose to \$18 a barrel. The regulation of wheat prices, which occurred a few months later,² was a primary influence in determining the amount of wheat that would be grown. The minimum price set by the Food Administration for the 1918 crop was \$2.00 a bushel. This was acknowledged to be a tentative price only and was not high enough to induce the sowing of an unusually large acreage in the fall of 1917. An appeal was made to patriotism as an additional motive and the Department of Agriculture set the acreage of winter wheat desired at 47,337,000 acres. Excessively dry weather interfered with the sowing in many places, while wet weather and lack of help did the same in other sections. The area reported sown was 42,170,000 acres. This was far below the ideal but, nevertheless, was greater than ever before sown in any fall, the highest figure reached previously having been 42,012,000 in the fall of 1914. While the price offered hardly seems sufficient to call out an unusual effort to increase production it must be remembered that the certainty of a fairly high price appeals strongly to many men. The other high prices were not guaranteed and might not last.

The distribution of the wheat acreage among the States for the years 1916 and 1917 is of interest. In eleven different States the acreage of fall sown wheat exceeds a million acres each, and in all of these except Missouri, Nebraska, and Texas, the government had asked for more than a ten per cent increase. In two instances, North Carolina and Missouri, the response was beyond the asking; in Indiana it was equal to the asking; in the other eight States decidedly below. The acreages and percentages follow:³

¹ Monthly Crop Report, December, 1917.

² Discussed under "Food Control," below.

³ Bureau of Crop Estimates, Report of December 19, 1917.

TABLE VII
THE 1917-18 WINTER WHEAT ACREAGES SUGGESTED AND REALIZED

State	Area Sown		1917 Com- pared with 1916	Asked for in Comparison with 1916
	1917 Acres	1916 Acres		
Pennsylvania	1,530,000	1,457,000	105%	114%
Virginia	1,463,000	1,330,000	110	115
North Carolina....	1,179,000	1,025,000	115	112
Ohio	2,145,000	1,950,000	110	160
Indiana	2,645,000	2,116,000	125	125
Illinois	2,602,000	2,365,000	110	124
Missouri	2,875,000	2,300,000	125	105
Nebraska	3,135,000	3,645,000	86	101
Kansas	9,479,000	9,479,000	100	112
Texas	1,622,000	1,725,000	94	108
Oklahoma	3,264,000	3,400,000	96	125
	31,939,000	30,792,000	103.7	114.3

THE 1918 SPRING WHEAT ACREAGES SUGGESTED AND REALIZED

State	Area Sown		1918 Com- pared with 1917	Asked for in Comparison with 1917
	1918 Acres	1917 Acres		
Maine	23,000	11,000	209%	182%
Vermont	10,000	3,000	350	167
New York.....	50,000	.....	...	...
Ohio	15,000	.....	...	...
Indiana	7,000	.....	...	...
Illinois	180,000	.....	...	...
Michigan	35,000	.....	...	...
Wisconsin	333,000	146,000	228	342
Minnesota	4,038,000	3,230,000	125	122
Iowa	650,000	250,000	260	300
North Dakota....	7,770,000	7,000,000	111	109
South Dakota....	4,243,000	3,596,000	118	100
Nebraska	512,000	400,000	128	175
Kansas	51,000	44,000	116	114
Montana	1,380,000	1,122,000	123	50
Wyoming	160,000	123,000	130	142
California	312,000	264,000	118	123
New Mexico	79,000	69,000	115	114
Utah	104,000	90,000	115	139
Nevada	39,000	37,000	105	135
Idaho	469,000	375,000	125	62
Washington	1,728,000	1,350,000	128	126
Oregon	441,000	401,000	110	75
	22,629,000	18,511,000	122.2	114

Uninfluenced by patriotism and with no guaranteed minimum price the acreage sown in 1914 exceeded by 4,000,000 acres the sowing of the previous year, and passed the previous maximum

acreage of 1903. With the \$2.00 price in view one would have predicted a greater increase in the acreage sown in the fall of 1917 than actually occurred. There are good reasons to believe that had the weather not been so unfavorable the decrease of over half a million acres in the three States of Texas, Oklahoma and Washington would not have been reported, but instead these States would have shown some increase. Even so there could not well have been a total increase approaching the seven and a quarter million acres asked for.

Before the time had arrived for sowing spring wheat in 1918, the President announced the price of \$2.20 per bushel, thus raising the guaranteed offer twenty cents above the promise made in 1917. The response was all that could reasonably be expected—in fact it is safe to say that for any additional acreage of wheat over that actually sown there must have been a corresponding decrease in other acreages, and, furthermore, that wheat would have been sown on land not well adapted to it. The fall sowing, had the weather permitted, might have been somewhat further expanded advantageously; the spring sowing was perhaps large enough.

The Department of Agriculture reports 22,489,000 acres of spring sown wheat,¹ an increase of 21.5 per cent over that of 1917. The acreage of all wheat for 1918, 58,881,000 acres, is an increase of 28.2 per cent over that of 1917. Thus the acreage of all wheat for 1918 is greater than ever known at any time except in 1915, and is but 1,588,000 acres below the acreage of that year.

Summary of the Influence of the War on American Wheat. To what extent was the war responsible for the trend of events in the history of wheat production and trade from 1914 to 1917? The question admits of fairly definite answer. The war began in the midst of the 1914 harvest, and before any considerable amount had been sold. The crop was an excellent one in quantity and sold for upwards of 25 per cent above the prices prevailing during the preceding year. This induced the great acreage of

¹ Monthly Crop Report, June, 1918.

1915, 60,000,000 acres, or about 20 per cent above normal. The record yield of wheat throughout the world in 1915 held the price down and the American farmers dropped back to normal acreages of wheat in 1916. In the fall of 1916 the sowing was extensive, stimulated by high prices following a light yield, but winter killing reduced the acreage to the lowest point since 1912, and unfavorable weather reduced the yield to the lowest point since 1904.¹ The farmers were just beginning to respond to the stimulus of increased price following the relatively low prices from the fall of 1915 to the fall of 1916. The weather prevented an unusual yield in both 1916 and 1917, and the high prices of the spring of 1917 were taken in hand by the Food Administration before the time for sowing in the fall of that year. The heavy exportation during 1916 following a rather light crop was made possible by the high prices, but other farm prices were so high in the spring of 1917 that the inducement to sow wheat in place of corn or oats was no greater than normal. Thus what would have been the effect of war prices on wheat production and exportation, had prices been allowed to take the course marked out by competition and speculation, and what has taken place under the regulated prices are two different stories. Furthermore, what would have happened is a matter of speculation and need be given little space. That the price of wheat would have been much higher is beyond question. That this higher price would have been effective in inducing the sowing of more wheat than has been sown is also beyond question. On the other hand the unregulated price would no doubt have been unstable and the wheat growers kept in a continual state of unrest. This would have offset much of the good result of the added supply as well as create trouble among consumers over dear bread.

Exportation. There are two forces which always tend to draw or send produce to a market. The one is price, the other is abundance. In the case of high prices the tendency on the part of sellers is to sell not only the normal surplus but to exceed that,

¹ This is based on the figures of the Food Administration, which indicate about 50,000,000 bushels less than the estimate of the Department of Agriculture.

getting along at home with a relatively small supply. In the case of abundance of product it will be sent to market even though the price be unattractive. Just as the war began, both incentives were at work to induce American wheat to go to Europe. There was an attractive price and an abundance of wheat. We had been producing about seven or eight bushels of wheat per capita and selling abroad the excess bushel or two. For several years preceding our entrance into the war we had had nearly double the usual surplus.

The combined circumstances of a bountiful wheat crop in 1913 and again in 1914 followed by a record crop in 1915 allowed heavy exports without any disturbance at home so far as supplies of wheat were concerned. From July 1, 1914, to July 1, 1915, the exportation reached 332,000,000 bushels. The next year 243,000,000 bushels were exported, and still there was a full supply left. This was following the great crop of 1915. For the year 1916 to 1917, the exports were still above the normal, amounting to 203,000,000 bushels. While it did not appear likely, in view of the amount of wheat produced in 1916, that so large an amount could be spared as was exported in 1916-17 it is to be explained that the higher price called out the surplus until the quantity on hand at the close of the year was the smallest in a decade. Moreover, for some reason, probably the higher prices, the amount consumed fell some ten per cent below normal.

During the first few months of the fiscal year 1917-18 the exports were decidedly low, lower than for five years preceding. The amount exported in July, August and September, 1917, 25,000,000 bushels, was less than for the month of July alone in 1914.¹ "From the time of the organization of the Grain Corporation under the Food Administration in the summer of 1917 the question of exports was no longer one of free play of economic forces."

By the time the wheat crop of 1917 was harvested it was evident that the situation in Europe for the following year was destined to be desperate. The United Kingdom, France and Italy

¹ *Yearbook*, Department of Agriculture, 1917. Article by O. C. Stine.

were 213,000,000 bushels short of their usual amount of home-grown wheat. While there was wheat for export in Australia and Argentina there were no ships for carrying any considerable part of the amount needed. The western Allies normally import about 313,000,000 bushels of wheat, and being short 213,000,000 bushels in the home supply ¹ they needed 526,000,000 bushels to make up the usual amount for consumption. As a matter of fact they really needed more than enough to make up the usual quantity consumed since they were short of other foodstuffs not easily shipped, and furthermore on account of having so many men in the army. Bread is, if obtainable, one of the main articles of diet for the army.

The United States had on hand at the beginning of the year 1917-18 about 40,000,000 bushels of held over wheat. The crop of 1917 was not far from 600,000,000 bushels. With an average consumption of 5.3 bushels per capita, and 87,000,000 bushels for seed, but very little could be spared, apparently not over seven or eight million bushels. On the other hand by cutting down consumption well below normal the amount for export would be correspondingly increased. Should the consumption be brought to the average of the previous year there would be added to the 10,000,000 bushel surplus 61,800,000 bushels more, or a total of 71,800,000 bushels. Again there was the possibility of imports into the United States from Australia which would replenish the supply for export.

The evidence with respect to production, consumption and exports of wheat during the current year is conflicting, but out of it all the fact is significant that during the fiscal year, beginning July 1, 1917, we exported 140,000,000 bushels, or about double the amount supposed to be available with consumption cut as for the year 1916-17. The imports for the year reached 29,000,000 bushels. The Food Administration believed that during the first nine months of the year consumption had been little below normal.² If this be true, and no doubt it is, the saving of wheat

¹ *Yearbook*, Department of Agriculture, 1917. "World's Wheat Supply."

² *Commercial West*. April 20, 1918.

resolved itself into one of compulsion and was mainly crowded into the last three months of the year.¹

Rye

The other leading bread grain of America is rye, but its importance is shown by the relative acreage of this crop as compared with the wheat acreage. The average acreage of rye harvested from 1910 to 1914 was 305,000 acres. Since that time there has been a pronounced increase although the amount is still relatively insignificant, as compared with corn, wheat and oats. In 1915 there were over 3,000,000 acres, and in 1917 over 4,000,000 (Table VIII). From the standpoint of percentage this is one of the greatest increases among crops. The amount of rye sown in 1917, for harvest in 1918, as compared with the previous year was 36.6 per cent greater. One must hasten to say, however, that in actual area this is only 1,639,000 acres. Moreover, this was not a turning from wheat to rye to any considerable extent, since over half of this acreage is found outside of the winter wheat areas. The heavy seeding to rye in the fall of 1917 seems to have been caused mainly by two circumstances. First, the severe droughts in North and South Dakota in 1916 and 1917. Second, the relatively high price of rye. Over seven-eighths of the increase in the rye acreage of the country took place in these two States, and as a matter of fact, pretty much all of this in North Dakota. The North Dakota farmers were getting desperate. They must raise something. Wheat had been a comparative failure for two years. A winter crop stands the summer drought better than a spring crop. They can not sow winter wheat so they are trying rye.

The price of rye rose very promptly following the declaration of war in 1914. It had been worth 61 cents in August and rose to 75 cents the next month. In August, 1915, it stood at 89 cents, but like other grains it fell to a lower level on account of the big crops of that summer. In the fall of 1916 it started off at a dollar in September and continued to rise till in June, 1917, it

¹ For exports of 1910-1918 see Table X.

was quoted at \$1.83 per bushel. After dropping a few cents during the fall months it again rose, going to \$2.35 on the Chicago market in March, 1918. The occasion for this was the demand for rye flour as a substitute for wheat flour. Nothing official was done with respect to rye price, it being allowed to take its own course. Normally the price of rye has been about two-thirds that of wheat, but during the sowing season of 1917 it was about 80 per cent of that of wheat, while during several months in the spring of 1918 it was higher than wheat by five to twenty cents a bushel.

Rye has never been raised in such quantities as to become of much consequence in the export market. From 1910 to 1914 the average amount of rye exported was less than a million bushels per year. The rye used in England and France had been coming from Germany and Russia. It no longer being possible to get supplies from those countries the next most available source was the United States, and at once, 1914 to 1915, the exports rose to 13,000,000 bushels. The next year 15,250,000 bushels were exported, and the third year, ending June 30, 1917, 13,704,000 bushels were exported. (See Table X.) While these amounts are not large in comparison with wheat exports they are nevertheless important, and have had much to do with making rye sufficiently scarce to account in large measure for the high prices.

Corn

Although not a major bread grain as used in America the greatest of all the cereal crops from the standpoint of acres, bushels, and value is corn. There seemed to be no special inducement in 1915, or in the spring of 1916, to bring out a larger quantity of corn than usual. In fact, corn was not again so high in price for two full years as during the temporary flurry following the declaration of war in 1914.

Acreage. It is not, therefore, at all strange that the acreage remained almost constant during 1915 and 1916. Due to the season, the production of corn in 1915 was unusually large, having never been exceeded but once, in 1912. The crop of 1916

was, on the contrary, below the average of the period 1910 to 1914, by 165,000,000 bushels. By December 1, 1916, the price of corn, on farms, was 88.9 cents. In Chicago during that month it reached 96 cents, and soon passed the dollar mark. The farm price reached a dollar in March, 1917. With these very tangible reasons for growing more corn before him, the farmer needed no persuasion to bring about an increase in the 1917 corn planting. The acreage increased from 105,296,000 acres in 1916 to 119,755,000 acres in 1917. This was an increase of 14,459,000 acres, or 13.8 per cent, greater than had ever taken place before, even within a five year period. With a single exception, that of Oklahoma, increases in corn acreages were reported in 1917 for every State. These great gains in acreage, while general in one sense, were, nevertheless, confined more particularly to three distinct districts. By far the greatest is Kansas and Nebraska, a winter wheat district. The wheat had winter killed on account of dry weather. The land was available for some other crop and the most usual one to be substituted was corn. In these two States there was an increase in corn acreage over that of 1916 of more than 4,000,000 acres, or well above a quarter of the total for the country. The second district with respect to the expansion in corn acreage is the South. In eleven southern States including North Carolina, Kentucky, Arkansas, and the States to the south of them, together with Texas, there was an increase of 5,111,000 acres, or over a third of the total increase for the country. The third district in which an important increase occurred comprised the very heart of the corn belt. In Iowa, Illinois, Indiana, Missouri and Ohio, ranging in the order named from 1,000,000 acres down to 350,000, there was an aggregate increase of over 3,000,000 acres, or over one-fifth of the total. Summing the matter up, it may be said that the increase in the corn acreage was mainly in the corn belt and in the South. In these two groups together we have fourteen States including seven corn belt States, Kansas, Nebraska, Iowa, Illinois, Indiana, Missouri and Ohio, and seven southern States, Kentucky, Tennessee, Mississippi, Alabama, Georgia, North Carolina and South Carolina.

These fourteen States containing less than one-fourth the area of the country, show two-thirds of the corn acreage increase. Everything considered, the added acreage within the corn belt is not remarkable; the expansion in the South is remarkable.

Production. The reported yield of corn for 1917 was 3,159,000,000 bushels, an amount greater by 34,000,000 bushels than the record yield of 1912. It must be recognized, however, that there is still something to be desired in the crop reporting system. The crop of 1917 was very largely immature corn and what it would have represented in terms of sound, or marketable, corn is difficult of determination. Certain it is that there was very much less in value of any form than was suggested by the figures published.

Price. The price of corn remained extremely high throughout the year 1917. The price to producers in August was \$1.97, at which time the prices at the central markets were well above \$2.00. Even with the new crop prices remained high during the fall of 1917 and the winter following. In November farmers were receiving \$1.46 per bushel.¹

Exports. The exports of corn had never been very great in terms of the amount produced, and had been down to one or two per cent of the crop for some years preceding the war. At the beginning of the war the exports were 50,000,000 bushels, or 1.6 per cent of the amount grown in 1914. The next year but 40,000,000 bushels were exported. This is in marked contrast with the unprecedented wheat exports of those years. In 1916-17 the exports amounted to 67,000,000 bushels, and in 1917-18, to 48,484,000 bushels.

Corn is not used greatly as a food in any of the European countries. It is not the main reliance in the feed of army horses, and it has been too dear to be sold abroad as a feed for meat or dairy animals. For these reasons it has not entered extensively into foreign trade.

¹ The prices of corn quoted in the above paragraphs are taken from the Monthly Crop Reports.

Oats

The demand for oats for war purposes is very real and direct, and the price responded at once, rising five cents a bushel within a month after war was declared. While this was not a very great rise in price it must be remembered that it took place at the time of year when oats almost always decline in price, and, moreover, it was in the face of a heavy crop.

Acreage. The acreages sown to oats in 1915 and 1916 were greater than ever before, though not greatly in excess of the normal rate of increase which had been taking place during previous years. The area sown in 1914 was 38,400,000 acres; in 1915, 41,000,000; in 1916, 41,500,000; while in 1917 it made a distinct advance, reaching 43,572,000 acres. Thus the acreage of 1917 was greater than that of 1914 by 5,200,000 acres, or 13.5 per cent, and greater than that of 1916 by over 2,000,000 acres, or about 5 per cent. The acreage for 1918 is according to the estimate published in June, 44,474,000 acres, an increase of 902,000 acres, or 2.1 per cent.

The great increase in acreage in 1917 was due as much to the accidents of the weather as to any more explainable cause. As in the case of the corn acreage a considerable area of winter wheat land, on which the wheat crop failed to get through the winter, was sown to oats in the spring. Over three-fourths of the added acres of 1917 as compared with 1916 were found in Kansas and Nebraska, the States suffering the greatest loss in winter wheat. The balance of the increase, only a half million acres, was widely distributed over the northern States. Actually there was more than this amount of increase in the North since the acreage in the South was in substantially every State lower than in 1916. Thus the half million acres was a net increase after allowance was made for these decreases. However, there was no pronounced increase in any State other than those mentioned, Kansas and Nebraska. Apparently, the South in expanding the corn acreage encroached upon the oats acreage. This is reasonable since oats have never been a very profitable crop in the South.

Production. The production of oats was above the average in 1914, 1,141,000,000 bushels, but reached the record making figure of 1,549,000,000 bushels in 1915, while the 1916 crop was the third highest on record with 1,252,000,000 bushels. Then came the crop of 1917 with the advantage of a few million acres more of land contributing to the yield and a reported production of 1,587,000,000 bushels, or a little more than the remarkable crop of 1915. Thus the country has been supplied with oats as never before. The four crops from 1914 to 1917 inclusive furnished more oats by 880,000,000 bushels than did the four crops preceding 1914. This increase was in but small degree due to the war. It is, however, of great importance with respect to the war, the four crops, 1914 to 1917, amounting in quantity to very nearly as much as five ordinary crops, yet even so oats were scarce by the spring of 1918.

Price. The price of oats rose on the outbreak of the war but failed to go abnormally high either then or until 1917. About the time America entered the war oats like all other cereals began to mount in price and ranged from 62 to 74 cents, farm price, during the remainder of 1917. The Chicago price reached 97 cents in the spring of 1918 and was taken in hand by the Food Administration, the limit on future bidding being limited to 93 cents. Locally they have sold repeatedly at \$1.00, even in the heart of the main oat producing districts.

Exports. The exportation of oats has always been very irregular, changing from a million bushels one year to ten or fifteen million the next, and, for instance, dropping from 48,000,000 bushels in 1905 to 6,000,000 bushels in 1906. During the first year of the war we exported the unprecedented quantity of 100,000,000 bushels and fell less than 2,000,000 bushels below that figure the second year. For the year ending June 30, 1917, the exportation was 95,000,000 bushels. Thus we were from 1914 to 1917 exporting about ten times as many oats as usual.

The countries furnishing the bulk of the oats entering into international trade are Russia, Argentina, Canada and the United States. The leading importing countries were, normally, the

United Kingdom and France, these two countries taking, for example, in 1913, 43 per cent of the total imports of all countries. In 1915, that is from July 1, 1914, to June 30, 1915, these two countries took more than 85 per cent of the imports reported for Europe, 116,000,000 out of 135,000,000 bushels.¹ There were no reports for the Central Monarchies, and the importations by the small neutral countries had fallen off greatly from the figures of the preceding year. For the year ending June 30, 1917, the exports of oats were 95,000,000 bushels, or nearly as great as for either of the preceding two years. For the year 1917-18, the exports amounted to 125,300,000 bushels, a quantity somewhat greater than for the years immediately preceding.² Clearly the Allies have been, and still are, greatly dependent upon the American supply of oats. The only other countries able to furnish oats in any considerable amount for the Allies are Canada and Argentina. The Canadian supply is by no means adequate and Argentina is a long way off in view of the shortage in shipping. America has been able to supply the demand for oats out of very bountiful crops. A short crop would mean great hardship to all concerned.

Barley

Acreage. The only other cereal crop of great importance is barley, and that in acreage is but about one-fifth as extensive as the oat crop. For the five year period, 1910-1914, the average acreage of barley was 7,592,000 acres. Due, no doubt, to the stimulation of the higher prices the acreage increased from 7,149,000 acres in 1915 to 8,835,000 acres in 1917. While this represents a big increase relatively, it amounts to but 1,687,000 acres; not a great area in terms of the extent of land producing cereals. The report for 1918 shows 9,108,000 acres of barley, an increase of 273,000 acres, or 3.1 per cent over the acreage of 1916-17.

Production. The amount of barley produced averaged from

¹ *Yearbook*, Department of Agriculture, 1916.

² Bradstreet's, February 23, 1918. In the figures for part of this year oatmeal was not included.

1910 to 1914, 186,000,000 bushels. In 1915 it rose to 229,000,000 bushels, and in 1917, even with a greater acreage, fell back to 209,000,000 bushels.

Price. The price of barley rose perceptibly, following the outbreak of the war, from 45 cents to 52.5 cents per bushel. There was not, however, any disposition to rush into barley production, and not till the fall of 1916 was the price high enough to attract attention. In December, 1916, the farm price was, according to the report of the Department of Agriculture, 88.1 cents. This is, of course, an average. As a matter of fact some of the barley going to the Milwaukee market brought over a dollar to the farmers. During 1917 barley prices were extremely high, ranging from 87 cents to \$1.20 per bushel.¹ During the first few months of 1918 barley brought at local points over \$2.00 a bushel.

Exports. The amount of barley exported in normal years is not of great consequence. In 1910-1914 exports averaged less than 8,000,000 bushels. During the first year of the war it reached 26,755,000 bushels, remained at about the same figure for the year following, and fell to 16,000,000 bushels for the year 1916-17.

Rice and Buckwheat

These need no discussion so far as extent of crop is concerned since neither covers a million acres.

Potatoes

The question of a sufficient crop of potatoes became a matter of State and national concern almost as soon as war was declared. There are but few crops which yield as much food per acre as the potato. One special reason for a campaign to increase the planting of potatoes was the unprecedented price at which they were selling during the spring of 1917. A dollar a peck was the usual price. Would farmers, special potato growers, and town people with gardens plant seed worth so high a figure? This was a pertinent question. It took from \$30 to \$40 worth of seed per acre.

¹ Monthly Crop Report, December, 1917.

The reports show that about the usual acreage was planted in the special districts, and that not less than 700,000 acres above normal were planted, altogether, aside from an unknown acreage in the unreported war gardens. The reported acreage for 1917 was 4,390,000 acres. In 1916, 3,565,000 acres were reported. Coupled with this big acreage was a yield beyond normal. For some reason not easy to explain the price of potatoes ruled high throughout the fall. During November the regular wholesale top price in Chicago was \$1.26 per bushel.

With the closing in of winter weather, it became necessary to ship potatoes, if they were to be shipped at all, in specially prepared cars furnished with stoves. During the winter of 1917-18 such cars, or any cars, were very hard to get. The results were high prices, a scarcity of potatoes, and consumption below normal throughout the winter months. When spring came, and with it the possibility and the urgent necessity of moving the potatoes, it soon became evident that potatoes were overabundant, and the price to the producer at once began to decline. While the growers in the potato districts were ready to sell at 40 cents a bushel, consumers were paying 40 cents a peck a hundred or two hundred miles away.

It was estimated that in the closing week of March, 1918, there were in the three States of Minnesota, Wisconsin and Michigan, a surplus of not less than 40,000,000 bushels of potatoes. Taking the country as a whole there were more potatoes than could possibly be disposed of before time for the new crop. At the same time, the consumption of potatoes was seriously curtailed by lack of transportation facilities and not all of them reached the consumers in time for consumption; many were fed to stock. The growers received less for a large portion of the crop of 1917 than it cost. The blame is mainly on the lack of cars for shipping the potatoes. No one is personally to blame. The farmers took their losses with varying degrees of equanimity. The serious question is: How long can they be induced to grow crops from a patriotic motive, at a financial loss, while their

neighbors grow other crops which seem to be as greatly needed and which the market will take at a profit?

Potatoes can be used to reduce greatly the consumption of wheat. It is therefore of great consequence that the crop be ample. In 1917, it seemed wise to urge farmers to plant a large acreage since the high price of seed threatened to reduce it. On the other hand the government was not in a position to take over the crop after it was produced and many growers felt disappointed after having followed the advice given and finding the result apparently of no avail. However, the planting was about as heavy as ever in 1918, and the chance for criticism greatly reduced since no very active campaign was carried on. It would seem wise for the government to devote its main energies in the matter of stimulating production to those products which it can handle, such as the bread grains and meats.

As the responsibility for feeding the world becomes more apparent to food producers, should the war continue for several years, there will be less disposition to complain should some crops, like the superabundant potatoes of 1917, seem to have been produced to no purpose. Growing potatoes is a more hazardous business than growing many other crops and those engaged in it expect ups and downs. The best policy to pursue is undoubtedly to urge production and then when a situation occurs such as that in the potato business of 1917-18, to use the power of the government to help matters. This was done to a considerable extent and helped very appreciably. With better developed machinery for the work greater assistance could be given.¹ For the acreages and production since the beginning of the war, see Tables VIII and IX.

Beans

Beans have long been greatly in demand for feeding soldiers. In the spring of 1917 an appeal was made to the people to grow a big crop of beans. Seed was high — not far from \$13 per bushel — but even so a very greatly increased acreage was

¹ The aid given by the State is discussed in the chapter on "Food Control."

planted. In 1916, there were 1,244,000 acres harvested; in 1917, 2,028,000 acres. Many acres in 1917 were abandoned, the planting having been much greater than the acres harvested indicate. The production, moreover, was not increased as much as the acreage, the year 1917 being an unfavorable one for bean yields. However there were 17,563,000 bushels reported, an increase of 56 per cent over the yield of 1916. (See Tables VIII and IX.)

COTTON

Normally about 55 to 68 per cent of the world's cotton comes from the United States. Since 1914, the world supply is even more dependent on the United States on account of lessened production in some of the other countries.¹ At the outbreak of the war the cotton market was suddenly demoralized; shipping was inadequate and unsafe; insurance rates were high; freight rates were high; some ports were closed. It so happened that the world was unusually well supplied with cotton when the war began, nearly every cotton producing country in the world having harvested unusually big crops in 1913 and again in 1914.

The Crop of 1914

The acreage of cotton in the United States in 1913 was the greatest ever known, 37,089,000 acres. The 1914 acreage was only slightly less, 36,832,000 acres. The yield per acre was greater in 1914, than for many years,—one of the greatest yields on record—with a resulting crop of 16,135,000 bales.² This was following a period of three years during which the average production was almost 14,000,000 bales. The aggregate amount of cotton produced in the United States during the four years, 1911–1914, was greater by 11,000,000 bales than during the four years preceding. Thus there had been harvested an amount of cotton about equal to an additional year's crop during the four years just preceding the war. It had been predicted before the

¹ Department of Agriculture, Circular No. 88. "The Agricultural Outlook for 1918: Cotton."

² A bale is reckoned at 500 pounds in all government estimates unless otherwise specified.

disturbing influences of August occurred, that prices were bound to be low.

When war was declared, it became immediately evident that the cotton market was in a precarious condition. The six countries, Great Britain, France, Russia, Germany, Austria-Hungary and Belgium, usually take about 50 to 60 per cent of the American cotton crop. With all of them involved in the war it was a question whether or not they would take any considerable amount. Consternation and dismay spread over the southern States. Their main dependence for income is cotton. During the fall of 1914, the price of cotton fell from 14 cents to 6 cents a pound. The cost of ocean freight rose to \$1.25 and \$2.50 a hundred pounds on baled cotton; insurance was correspondingly high. The carrying trade, which had been almost altogether in foreign hands, was disorganized. The demand on the part of the belligerent countries was immediately for wool and woollens. For a short time it seemed as though interest in cotton and cotton goods had collapsed.¹ The quantity of cotton exported during the four months of August to November, inclusive, 1914, was under one-third of the amount for the corresponding months of 1913. In the meantime, Congress was implored to come to the rescue. Bills were introduced providing for the advance of public money to the cotton growers. There were all manner of plans. It was proposed to repeal the 10 per cent tax on the State issue of bank notes so that the State could issue notes and take care of the cotton.² Another plan was for the government to issue emergency currency to be loaned to the cotton growers on cotton warehouse certificates.³ Appeals were made to the Secretary of the Treasury to transfer the United States deposits to the South and make them available for bank loans. There was the "buy a bale" campaign in which every citizen was urged to buy a bale at 10 cents a pound. Not much came of these enterprises. The most important relief measure was that whereby the regional

¹ *Review of Reviews*, 52:199. "A Year of Cotton and Other Southern Crops." Edward Ingle.

² *Congressional Record*, 63d Cong., 2d Sess., Appendix, p. 1196.

³ *Ibid.*, p. 14,962.

banks were permitted to discount paper from local national banks which in turn had lent money on cotton warehouse certificates as security. It might be interesting to trace more in detail the workings of these relief measures, were it not that the solution of the cotton difficulties came from another quarter. The markets were again opened, and cotton was in demand.

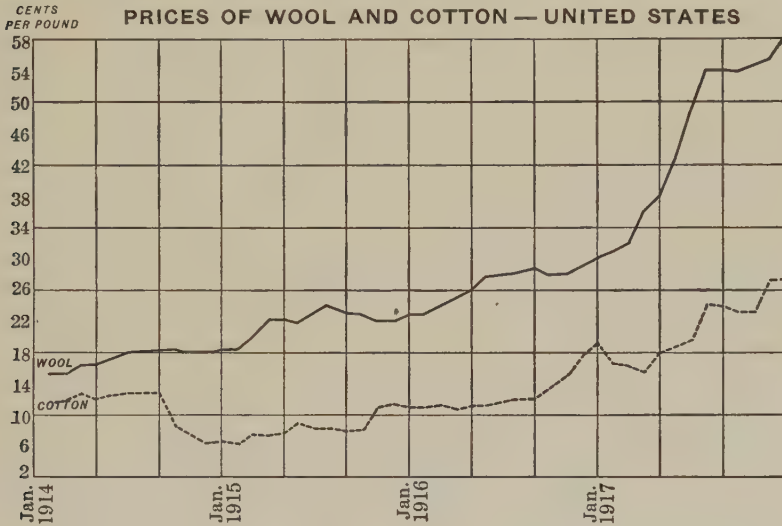


Chart II. Cotton fell abruptly in price at the outbreak of the war. The price, January 1, 1918, was over four times as high as the low point of 1914. Wool also has risen to a figure four times that of November, 1914.

Before the end of the fiscal year, 1914-15, the trade which had been so poor during the early months had recovered to such an extent that the total exports of American cotton were only 712,000 tons short of the exportation of the preceding year. The price had recovered to a great extent reaching 9 cents in May, 1915. It had been estimated that the South would lose \$450,000,000 on the 1914 cotton crop. Later, it was conceded that the loss was not over \$50,000,000 to \$75,000,000.¹ A few words from the *Southern Ruralist* are typical:

¹ *Review of Reviews*, 52:199. The estimated value as made by the Department of Agriculture was \$591,000,000, whereas the value of the crop of 1913 was estimated at \$885,000,000.

Our present enormous crop could have brought only moderate prices even had no war occurred to disturb industrial business. Under the present conditions the crop must inevitably be sold at an average price much below the actual cost of production—even should war cease before another crop is made.

A moderate crop next year, say 12,000,000 bales, would commercially be equivalent to a 17,000,000 bale crop because of the added surplus from this year. The result would inevitably be the marketing of two consecutive bumper crops—crops far in excess of the world's demands. This would mean two consecutive years of cotton prices ruinously below the cost of growing. It would mean the agricultural and financial ruin of the South.

These truths are so apparent that argument is useless. We present them because their reiteration at the beginning of a new farm year may strengthen the conviction and stimulate the courage of cotton growers to do that which the cold logic of facts makes an imperative duty—radical cotton acreage reduction.

This is no mere academic question. It is no good farming propaganda—important as that may be. It is no extension, demonstration, institute, diversification or other farm uplift movement. It is no mere issue between good farm practice and poor farm practice. Our very agricultural and commercial existence is at stake.¹

The Crop of 1915

How did the appeal for fewer acres impress the cotton planter? Apparently, for perhaps the second time in ten years, the doctrine of limitation of output in the face of low prices had taken root. The other occasion was in 1905, when, following a period of unusually low prices, and under the influence of a wave of enthusiasm engendered by the Farmers' Union, the acreage was reduced from 30,000,000 acres in 1904 to 26,000,000 acres in 1905. The lesson was, however, not lasting in its effects, for in 1906 the acreage was greater than ever before.

It was predicted that the cotton acreage of 1915 would be but half or two-thirds as great as that of 1914. The writers of the day advised that half the normal cotton acreage be planted to food crops.² After all this, when the Agricultural Department made its estimate for the crop actually planted, it was evident that the advice had fallen on deaf ears. The acreage was indeed below that of the preceding year, or of 1913, but the amount planted

¹ January 1, 1915.

² *Southern Ruralist*, January 1, 1915.

in 1913 and 1914 was greatly in excess of the normal. Thus while the acreage of 1915 showed a reduction of 5,400,000 acres, or 15 per cent, as compared with that of 1914, it was but seven per cent under the average for the preceding ten years, and hardly below the figure which had been considered normal previous to 1911. The failure to make the reduction in acreage in accordance with the advice was no doubt due to the lack of information, the inertia and the difficulty of a change in methods, more than to foresight. Nevertheless the farmers on this occasion were apparently wiser than their teachers. The world wanted the cotton and was willing to pay for it. Before the 1915 crop was harvested it was evident that the danger of a glut in the market was past, at least it was not imminent. The crop of 1915 was hardly equal to the average in yield per acre, and in the aggregate, 11,192,000 bales, was about two-thirds as great as that of 1914. It happened that the other leading cotton producing countries had rather light crops in 1915, so the supply was not overabundant. The price of American cotton to the farmer from October, 1915, to August, 1916, during which time nearly all of the 1915 crop was sold, ranged from 11 to 12.6 cents per pound.

The Crop of 1916

It was useless to ask the farmers to plant less cotton in 1916 than had been planted in 1915. Not only was cotton selling for a fairly satisfactory price during the winter of 1915 and 1916 and the spring following, but cottonseed prices were more than fifty per cent higher than for the preceding year. It was a foregone conclusion that the cotton farmer would plant cotton in abundance. The press did what it could to encourage diversification as did also the Department of Agriculture.¹ The outcome was an inevitable increase, though not enough to equal the very great acreages of 1913 and 1914. The acreage harvested in 1916 was 34,985,000 acres, which yielded 156.6 pounds per acre, almost exactly three-fourths as much as in 1914. The aggregate

¹ *The Progressive Farmer*, December 18, 1915.

amount of the crop was 11,450,000 bales, or 258,000 bales less than the crop of the year before.

The average farm price for the 1914 crop was 7.3 cents a pound;¹ the December price of the 1915 crop was 11.3 cents, of the 1916 crop 19.6 cents.²

The exportations for the year ending June 30, 1917, were, as in the preceding year, about two-thirds as great as just before the war, or slightly more than in 1916, the amount for 1917 being 3,093,000 bales. The surplus which this light exportation would normally have left was again absorbed by the American mills.

The Crop of 1917

Little was said about reducing the acreage of cotton in 1917. It was recognized that admonitions would be wasted. The acreage harvested was just a little (1,351,000 acres) below that of 1916. It may be wondered why the acreage had not increased in view of the almost unprecedented price of cotton. The answer is found in the prices of other products. Corn was high enough in price to tempt successfully the southern farmer to grow it in quantities as never before. The cotton acreage harvested was 33,634,000 acres. This was 1,351,000 acres or 3.8 per cent less than that of 1916. While this was not a great reduction in acreage it was very different from the record planting of 1914, being less by 2,455,000 acres. Following their own individual judgments it seems that the farmers raised about the ideal amount of cotton. Certainly not too much was produced. The yield for 1917 was 10,949,000 bales. This was a little less per acre than was grown in 1916 and but three-fourths as much as in 1914. In total amount it was but slightly more than two-thirds as much cotton as was grown in 1914. Possibly the low yield per acre was due in part to the lack of the usual commercial fertilizer. At all events the cotton crop of 1917 was the smallest in eight years, and the demand for it was unprecedented in half a century. According to an estimate of the *Progressive Farmer* the world

¹ *Yearbook*, Department of Agriculture, 1915, p. 12.

² Department of Agriculture, Circular No. 88. "The Agricultural Situation for 1918."

consumption of cotton from the beginning of the war to December, 1917, was 1,500,000 bales in excess of the production. This excess was made possible by the surplus of prewar years. There seemed no limit to the prices which manufacturers would pay. The farm price January 1, 1917, was 17.1 cents; on December 1, 1917, it was 27.7 cents, and the price of spot cotton in New York City, April 4, 1918, was 36 cents. Two weeks later it was down to 30 cents.

The exports for the current year (1917-18) have not been as heavy as for preceding war years, but nevertheless, there was a smaller quantity of cotton on hand in May, 1918, than a year earlier.¹ Ocean freight rates have reached figures which would seem under ordinary times to be entirely prohibitive, but the purchasers on the other side of the water have no alternative and so pay them. In April, 1918, it was costing \$11 a hundred pounds for cotton transportation across the Atlantic.²

The advice given the cotton planter in December was to plant the usual amount of cotton.³ After the sharp decline in prices in April, 1918, there was a disposition to advise that less cotton and more food crops be planted. This was, however, near the close of the cotton planting season.⁴ The planter had unquestionably followed his own inclinations to the full extent and according to the crop report planted 37,073,000 acres.⁵

SUMMARY OF PRINCIPAL CROPS

The total acreage of the fifteen principal crops of the United States for the years indicated were as follows:

1910	290,947,000 acres
1914	300,853,000 acres
1915	309,348,000 acres
1916	310,846,000 acres
1917	321,693,000 acres
1918	350,883,000 acres

¹ The visible supply on May 17, 1918, was 4,118,000 bales; a year before it was 4,090,000 bales. *Dun's Review*, May 18, 1918.

² *Progressive Farmer*, April 13, 1918.

³ *Southern Ruralist*, December 1, 1917.

⁴ *Progressive Farmer*, April 27, 1918.

⁵ Monthly Crop Report, June, 1918.

The increase of these crops from 1910 to 1914 was but 3.4 per cent. From 1914 to 1917 the increase was 6.1 per cent, while from 1916 to 1917 alone it was 3.3 per cent, or almost as much as in four years just prior to the war. The Department of Agriculture estimates that the total area in crops in 1918 is 3.7 per cent greater than in 1917.¹ Where did this increase of ten to fifteen million acres come from? It would be a difficult task to locate it. Undoubtedly it came quite largely from plowing up pastures, somewhat from the cropping of land which would normally have been left fallow. A little of it came from the natural expansion into the remaining wild lands. There is, however, one noticeable feature as to the expansion. It was somewhat greater in the South than in the North. The increase in the acreage of the fifteen crops above considered was greater in the South than in the North, but in addition to this fact there were four minor crops not included in the list of fifteen — sweet potatoes, peanuts, velvet beans and kaffir corn, which showed an aggregate increase of 4,876,000 acres in 1917 over the 1916 figures. Thus the South accounts for the larger part of the total increased crop acreage of the country.

TABLE VIII
CROP ACREAGES, 1915-1918

	1910-14	1915	1916	1917	1918 ²
Corn	105,239,000	106,197,000	105,296,000	119,775,000	113,835,000
Wheat	48,952,600	60,496,000	52,316,000	45,941,000	58,881,000
Hay	49,376,800	51,108,000	55,721,000	53,516,000	69,531,000
Oats	38,014,000	40,996,000	41,527,000	43,572,000	44,474,000
Cotton	35,330,000	31,412,000	34,985,000	33,634,000	37,073,000
Barley	7,592,000	7,149,000	7,757,000	8,835,000	9,108,000
Potatoes	3,685,400	3,734,000	3,565,000	4,390,000	4,113,000
Flax	2,402,200	1,387,000	1,474,000	1,809,000	1,967,000
Rye	2,305,200	3,120,000	3,213,000	4,102,000	5,435,000
Tobacco	1,209,000	1,370,000	1,413,000	1,446,600	1,453,000
Buckwheat	826,200	769,000	828,000	1,006,000	1,040,000
Beans .....	.....	.....	1,244,000	2,028,000	1,629,000
Rice	732,600	803,000	869,000	964,000	1,120,000
Sugar Beets ...	498,122	624,000	665,000	675,000	690,000
Sugar Cane ³ ...	4 242,000	183,000	.....	.....	⁵ 534,000
Total	296,405,122	309,348,000	310,873,000	321,693,000	350,883,000

¹ *Weekly News Letter*, August 7, 1918.

² Preliminary figures.

³ For Louisiana.

⁴ Average for 1911-1914.

⁵ For U. S.

TABLE IX
PRODUCTION OF IMPORTANT CROPS, 1915-1918

	1910-14	1915	1916	1917	1918 ¹
Corn —					
bushels ...	2,732,457,000	2,994,793,000	2,566,927,000	3,159,494,000	2,583,000,000
Wheat —					
bushels ...	728,225,000	1,025,801,000	638,218,000	650,828,000	917,000,000
Oats —					
bushels ...	1,157,961,000	1,549,030,000	1,251,992,000	1,587,286,000	1,538,000,000
Barley —					
bushels ...	186,207,600	228,851,000	182,309,000	208,975,000	256,000,000
Rye —					
bushels ...	37,568,000	54,050,000	48,862,000	60,145,000	76,000,000
Potatoes —					
bushels ...	360,772,000	359,721,000	286,953,000	442,536,000	405,500,000
Flax —					
bushels ...	18,332,600	14,030,000	14,296,000	8,473,000	15,792,000
Tobacco —					
pounds ...	991,958,400	1,062,237,000	1,153,278,000	1,196,451,000	1,187,000,000
Cotton —					
bales	14,259,000	11,192,000	11,449,930	10,949,000	13,000,000
Hay —					
tons	66,234,400	85,920,000	91,192,000	79,528,000	101,600,000
Buckwheat —					
bushels ...	17,022,000	15,056,000	11,662,000	17,460,000	17,000,000
Beans —					
bushels ...	.....	.....	12,029,000	17,563,000	19,791,000
Rye —					
bushels ...	24,378,200	28,947,000	40,861,000	36,278,000	43,373,000
Beet Sugar —					
short tons.	651,538	874,220	820,657	806,600	.....

¹ Preliminary estimate.

TABLE X
EXPORTS OF GRAIN AND VEGETABLE PRODUCTS, 1915-1918
(Years Ending June 30)

	1910-14	1915	1916	1917	1918
Corn & Corn Meal					
— bushels ..	41,409,000	50,668,000	39,897,000	66,753,000	48,484,000
Wheat & Flour					
— bushels ..	104,967,000	332,465,000	243,117,000	203,156,000	132,000,000
Barley —					
bushels	7,896,000	26,755,000	27,473,000	16,381,000	29,478,000
Oats & Oatmeal					
— bushels ..	9,655,000	100,609,000	98,963,000	95,106,000	125,300,000
Cotton —					
bales	4,420,000	4,404,000	3,084,000	3,093,000	4,528,844
Potatoes —					
bushels	1,699,000	3,135,000	4,018,000	2,489,000	3,453,000
Rye & Rye Flour					
— bushels ..	888,200	13,026,778	15,250,150	13,703,527	15,764,000
Tobacco (unmfd.)					
— pounds ..	392,183,071	348,346,091	443,293,156	411,598,416	288,781,511

	1910-14	1915	1916	1917	1918
Buckwheat—					
bushels	32,098	413,643	515,304	260,098	5,567
Onions—					
bushels	351,848	727,983	563,739	409,300	534,996
Rice—pounds.	18,489,389	75,448,635	120,695,213	180,484,685	196,363,268
Sugar (refined)					
—pounds ..	79,987,797	549,007,411	1,630,150,863	1,248,840,336	576,415,850
Beans and Peas					
—bushels ..	362,230	1,214,281	1,760,383	2,164,943	1,783,548

CHAPTER III

Live Stock: Production, Prices and Exports for 1914 to 1918

Changes in the numbers of live stock are not made as readily as changes in the acreages of cultivated crops. There was, therefore, naturally a slower response to the price stimulus in the case of live stock than in plant products. However, the prices of bread grains, if not indeed of all grains, has a tendency to out-run live stock prices in time of war. Such is the case now, and the farmers are aware of it. The prices of wheat, rye, corn, and oats are so high that farmers hesitate to go more extensively into live stock, thinking that there is more profit in selling grain than in feeding it. This tendency has been for the most part overcome by the fixing of the hog-corn price ratio, by the fixing of milk prices, the virtual guarantee that beef prices will be steadied through government buying, and the regulation of wool prices.¹ Why, it may be asked, should it be necessary to stabilize meat prices any more than to stabilize the prices of the corn, oats and hay used in animal production? The answer to this is that the process of production in the case of animals is a much longer one than in the case of crop production. The production of most animals not only requires a period of time running over several years, but it requires an investment which can not be shifted without considerable trouble and possible loss. As a result the producers of live stock are more apprehensive concerning future prices than are the grain farmers. If they start out to produce cattle, or sheep, for example, they can not abandon that line as readily as a wheat farmer can turn to something else, as barley and corn, and so divide his risks.

From the above argument, it might seem that under the circumstances which the war has brought about, stock raising

¹ Discussed in Chapter IV.

must of necessity decline. This is what has happened in the countries more directly affected than are we by the war. There has been a very great reduction in the live stock of Europe. Since more people can be supported by the direct method of using the cereals, than by the indirect method of feeding the cereals to stock and then using the stock, it will no doubt continue to be the result that live stock will be kept in fewer and fewer numbers in times of such stress. However, in spite of the logic the fact remains that up to the present there has been an increase since the war began in the live stock kept in the United States. On the other hand there has not been enough, and is not enough, to supply the needs of the Allies for animal products, and the question of needs should, under the circumstances, be made paramount to the profits of the individual. To keep the individual producer fairly well satisfied and yet hold prices within reach of the consumer is the difficult task of a nation at war and this task involves more insight and foresight in the case of animals than of crops. The different kinds of farm animals will be discussed separately.

HORSES

Number. The number of horses continued its very slow rate of increase from 1914 to 1918, a slight decrease occurring for the one year, 1916. The increase from 21,195,000 in 1915 to 21,563,000 in 1918 is but 1.7 per cent for the three years. This is less than a normal increase in view of the probable increase taking place in the number of farms. It suggests that the very high price of feed has resulted in economy in the use of horses. Possibly the farm tractor may be taking the place of a few more horses than ever before. The former is the more probable explanation so far as the country as a whole is concerned. Indirectly the use of motor trucks in the cities may, by making a lessened demand for horses in the cities, reduce their numbers on farms. At all events the increase in the number of horses on farms was but one-third as great from 1914 to 1918 as it had been from 1910 to 1914, a like period of time.

Price. The prices of horses had not been such as to encour-

age further production. The average value of farm horses was at its maximum in 1911, \$111.46. In 1914 the average was \$109.32, and in 1916 the low point of \$101.60 was reached. During the next two years, the price advanced a very little, standing at \$102.28 on January 1, 1918. The aggregate value of the horses of the country is less by \$30,000,000 than in January, 1914. This is in marked contrast with the great advances in the values of meat animals during the same period of time.

Exports. The number of horses exported in the three years before the war averaged but 29,000 annually, an insignificant subtraction from the supply of the country. In 1915 and 1916, due to war demands, the exportations were respectively 289,000 and 358,000. Even these numbers are not large. For the calendar year 1917 but 169,000 were shipped out of the country. Thus the foreign demand is not enough to affect the market.

MULES

Number. The number of mules increased somewhat more rapidly than the number of horses during the four years from January 1, 1914, to January 1, 1918. In the former year there were 4,449,000; in the present year 4,824,000, a difference of 375,000 or 8.4 per cent. This is not a great increase, but it is fairly in keeping with the increased acreage of crops in the southern States, the section in which most mules are found.

Price. As in the case of horses the prices have not been such as to stimulate increased numbers. The average value, January, 1914, was \$123.85 and was less than that amount for three succeeding years, rising, however, to \$128.74 in 1918. This is in marked contrast with the increase of 94.1 per cent in the value of crops from 1916 to 1918. During the same two years the price of mules increased 13.1 per cent or less than one-seventh as much.

Exports. Mules were exported during the first years of the war in considerable though not great numbers. Before the war the annual exportations had been from four to six thousand. In the year ending June 30, 1915, 66,000 were shipped out of the country. The next year 112,000 and in the calendar year of

1917, 73,000. The exportations have apparently not been enough to increase greatly the prices.¹

CATTLE

A rather pronounced change has taken place in the cattle business since the war began. The gradual decrease in numbers which had been in progress for some years before the war changed to a gradual increase following 1914. The total number of cattle reported in 1914 was 56,592,000. In 1918 it was 66,830,000, an increase of 10,238,000, or 18 per cent. Whereas there were but 56.5 head of cattle per 100 of population in 1914, the proportion had increased to 64.9 in 1918. The agricultural press was skeptical as to the reliability of the government figures believing them to be altogether too high.² However, the receipts of cattle at the leading stock markets of the country tend to prove that the estimates were not far wrong. For the first half of the calendar year 1918, the receipts of cattle at the ten leading markets was greater by 799,000 or 12.94 per cent than for the corresponding period a year earlier.³ The interest in the cattle business centers in two main classes, cows and other cattle.

Cows. The number of cows was substantially at a standstill from 1910 to 1914. In 1910 the number reported was 20,625,000; in 1914 the estimated number was 20,773,000. During the four years from 1914 to 1918 the number increased to 23,284,000, a gain of 12 per cent. This was a little more rapid than the increase in population and raised the proportion from one cow to 5 people to one for each 4.4 people.

It must be remembered that a large part of the so-called milch cows are not strictly dairy cows but are the general farm cows kept fully as much for beef production as for milk. Hence the number of cows will rise in response to increased beef production almost as much as in response to increased dairy production. As

¹ *Yearbook*, Department of Agriculture, 1916. Monthly Crop Report, February, 1918.

² For example, see *Breeder's Gazette*, February 14, 1918.

³ Live Stock Report, Clay, Robinson & Co., July 11, 1918.

a matter of fact, the increase in the number of cows from 1914 to 1918 was distinctly greater in the States in which cows are kept for general purposes, than in those where dairying is the primary purpose, suggesting that the stimulus has been rather more for beef than for dairy production.

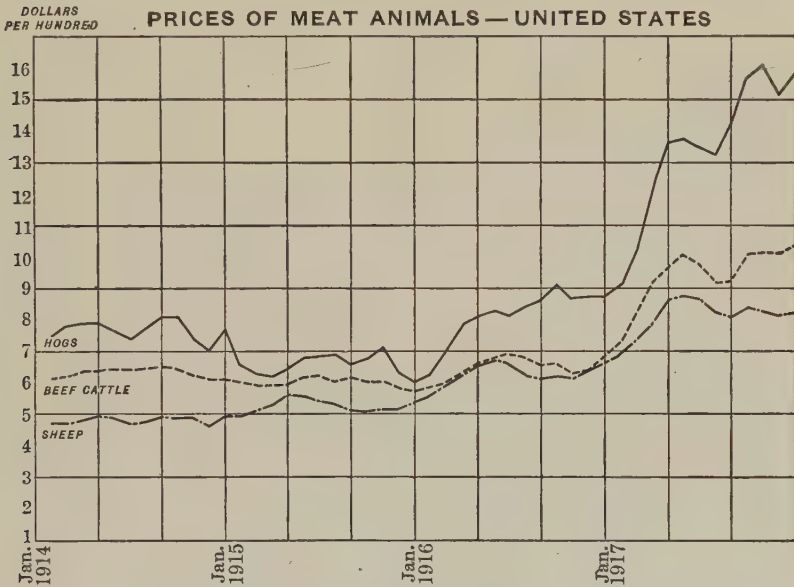


Chart III. The prices of meat animals began their spectacular rise in 1916, and have reached unprecedented figures.

The price of cows shows an almost uninterrupted increase from 1914 to 1918. During the preceding period of four years, 1910 to 1914, the increase in price was from \$35.29 to \$53.94, about \$10.00 per head. From 1914 to 1918 the price rose to \$70.59, an increase of \$16.65 or 30 per cent. This is a small percentage as compared with the increase in the prices of cereals.

The effect of the price of milk on the number of cows kept will be discussed in the section on "The Control of Milk."

Other Cattle. The term "other cattle" means cattle other than cows. The number of these cattle had decreased from 41,178,000 in 1910 to 35,885,000 in 1914, the latter figure being

the lowest in fifteen years. Following 1914 a steady increase is reported, bringing the number to 43,546,000 in 1918. This represents an increase within four years of 21 per cent. Thus the increase in other cattle has been since the war began distinctly greater than the increase in the number of cows. The greatest increases in numbers of other cattle have been in the corn belt — especially the portion west of the Mississippi and in Minnesota, South Dakota, California, Colorado and Arizona. Losses in numbers occurred in Texas.

The prices of other cattle increased over 50 per cent from 1910 to 1914. From 1914 to 1918 the increase was from \$31.13 to \$40.88, or 31.3 per cent. This again is much below the average increase in meat animals for 1916 to 1918. The increase in the latter was 94.9 per cent, or three times that of other cattle.¹

The number of cattle used for beef fell from about 13,270,000 in 1910 to 11,207,000 in 1914, a decline of 15.5 per cent. From 1914 to 1917 there was a pronounced increase, 3.8 per cent, in the number of cattle used for beef. The number slaughtered in 1917 was approximately 15,498,000. Veal calves, not included in the beef cattle estimate showed a decline from 3,825,000 in 1910 to 3,025,000 in 1914, a drop of 20.9 per cent. From 1914 to 1917 the number of calves used for veal rose to 4,666,000, an increase of 47.7 per cent. Taking into account both beef cattle and calves it is a clear case that the quantity of beef per capita took a distinct upward turn about 1914.² These figures compare very well with the estimates of the number of cattle made by the Department of Agriculture.

The increase in cattle prices noted above corresponds very closely with the price changes in beef cattle. In 1914, the average price was \$6.24 per 100 pounds, in 1917 it was \$8.14. Thus the increase was \$1.90 per hundred pounds, or 30.5 per cent. It is however significant that the greater part of this increase took place in the one year from 1916 to 1917, the 1916 price averaging \$6.48.

¹ Monthly Crop Report, February, 1918.

² The number of cattle used for beef was computed from Table XI.

TABLE XI

NUMBER OF ESTABLISHMENTS AND TOTAL NUMBER OF ANIMALS INSPECTED AT
SLAUGHTER UNDER FEDERAL INSPECTION ANNUALLY, 1907-1917¹

	(Years ending June 30)											
	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	
Establishments	708	787	876	919	936	940	910	893	896	875	883	
Cattle	7,621,717	7,116,275	7,325,337	7,962,189	7,781,030	7,532,005	7,155,816	6,724,117	6,964,402	7,404,288	9,299,489	
Calves	1,763,574	1,995,487	2,046,711	2,295,099	2,219,908	2,242,929	2,098,484	1,814,904	1,735,902	2,048,022	2,679,745	
Swine	31,815,900	35,113,077	35,427,931	27,656,021	29,916,363	34,966,378	32,287,538	33,289,705	36,247,958	40,482,799	40,210,847	
Sheep	9,681,876	9,702,545	10,802,903	11,149,937	13,005,502	14,208,724	14,724,465	14,958,834	12,909,089	11,985,926	11,343,418	
Goats	52,149	45,953	69,193	115,811	54,145	63,983	56,556	121,827	165,533	180,356	174,649	
All Animals ..	50,935,216	53,973,337	55,672,075	49,179,057	52,976,948	59,014,019	56,322,859	56,909,387	58,022,884	62,101,391	63,708,148	

¹ This equals about 60 per cent of the total slaughter of the United States.

Exports. The exports of cattle have been of little consequence for a considerable number of years. The exports of beef have, on the contrary, been of great and, recently, increasing importance. In 1917 but 13,000 cattle were exported, less than a sixth as many as the average annual number for the period 1910-1914. This is in marked contrast with the beef exports which had averaged 220,000,000 pounds during the five years before the war and rose to 444,000,000 pounds, or double the amount, in 1916. In 1917 (year ending June 30) the exports were 441,000,000 pounds, and for 1918, 502,000,000 pounds, a gain of 61,000,000 pounds or 13.9 per cent.

DAIRY PRODUCTS

With the exception of cheese figures and more recently of those pertaining to condensed milk, the statistics of dairy products have never been very satisfactory. Much milk goes into cheese and condensed milk, both of which are made nearly altogether in factories. On the other hand, a much larger quantity of milk is used as such, or made into butter. A great deal of the milk is used by those who produce it, either as milk, or as butter or other products made from milk. We can do no better than to assume that the milk produced, and therefore all dairy products in the aggregate, have increased in about the same proportion in which the number of cows has increased. For the purpose of this study the significance of the dairy industry hinges largely on the exports of dairy products, and on the production of milk for city use, these being the only respects in which the war has influenced the business to any very great extent. These subjects will be discussed later.

Prices. In passing, it may be well to note that the prices of dairy products had been very stable up to 1914. For example New York City high prices for butter, that is the highest prices paid, during the years from 1910 to 1914, inclusive, were 35 cents, 39 cents, 41 cents and 42 cents, respectively. The prices of milk had varied even less. The Chicago average yearly wholesale price of milk from 1909 to 1914 ranged from \$1.23 to \$1.39

per hundred pounds. The tendency for milk prices to become and remain customary has been greatly disturbed by the war.

Exports. The United States had not before the war, been a great exporter of dairy products at any time, with the exception of considerable exportations of cheese from 1877 to 1886. Beginning with 1914 the exportation of dairy products increased greatly though no great quantities were exported of butter or cheese. Condensed milk, on the contrary, has become an important article of export.

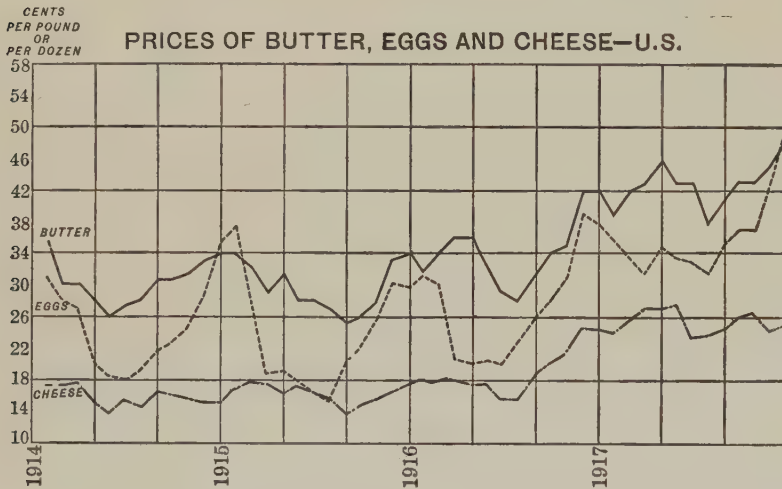


Chart IV. Prices of butter, eggs and cheese showed but little upward tendency until the fall of 1916.

Butter. The amount of butter exported before the war, 1910 to 1914, was annually, on an average, 4,278,000 pounds. This quantity rose at once to 9,851,000 pounds in 1915, and to 26,835,000 pounds in 1917. During the first two months of 1918 there was, however, but 15,891,000 pounds sold abroad. This falling off was due in some measure to lack of shipping facilities. After all, these exportations are very small in view of the amount made annually.

Cheese. In 1877 to 1881, cheese was exported to the extent of 130,000,000 pounds annually. From 1910 to 1914 the annual ex-

ports were but 4,915,000 pounds on an average. During the first three years of the war, the exports were respectively, 55,000,000, 44,000,000 and 66,000,000 pounds. During the first ten months of the year 1917-18 there were but 21,000,000 pounds sold outside the country. The great falling off was no doubt due to the food regulation in Great Britain, a low price having been set on cheese. However, more has been going abroad during the spring months of 1918, 9,491,000 pounds of the 21,000,000 having been shipped in the month of April. In October, 1917, the amount of cheese in storage was a matter of great concern. In July, 1918, the bulk of the surplus was gone. In the former month the amount in storage was 92,500,000 pounds; in the latter month 38,000,000 pounds.¹

Condensed Milk. Condensed milk had attracted little attention as an export before the war. The sacrificing of the European dairy herds, together with the availability of condensed milk as food for soldiers created an unprecedented demand. From 1910 to 1914, we exported about 16,000,000 pounds annually. The exports for the next four years were as follows:

1915	37,235,627 pounds
1916	159,577,620 pounds
1917	259,100,000 pounds
1918	530,000,000 pounds

During the winter of 1917 and 1918, condensed milk was stored in great quantities and many plants closed down because of inability to sell the product. By August 1, 1918, the surplus had been about all disposed of, the price per case was \$1.10 higher at the factory than in June, two months before, and the demand in excess of the supply.² The amount of condensed milk exported is about equal to 1,325,000,000 of whole milk, an amount which could be made into approximately 45,000,000 pounds of butter, or nearly three times as much as the amount of butter exported during the first ten months of the last fiscal year. Made into cheese the milk used for export condensed milk would have

¹ *Butter, Cheese and Egg Journal*, August 14, 1918.

² *Ibid.*

made approximately 132,000,000 pounds, or twice as much as the cheese exports in 1917.

Hogs

Number. As noted in Chapter I, the number of hogs in the country in 1914 was smaller in proportion to population than in many years preceding. In 1915 there was a decided increase in the hog business, the number rising from 58,933,000 of the preceding year to 64,618,000. A further increase followed during the next three years, the number reported in 1918, being 71,374,000. This is a considerable gain in proportion to population. In 1914, there were 59 hogs per 100 people, and in 1918, about 69, a sufficient increase to give evidence of abundance of pork products were it not for the unprecedented demand for them across the Atlantic. The above comparisons are based on the estimates made by the Department of Agriculture. We have few other data from which to judge. Whether we have such a gratifying increase in the hog population or not is at least open to serious question. The estimates made by the Department in the past have not tallied with the census figures in such a manner as to allay all suspicion as to reliability. There had been a disposition on the part of some of the agricultural papers interested primarily in live stock to throw much doubt over the published figures.¹ However, as in the case of cattle, the reports coming from the stock yards of the country corroborate the estimates of the Department very strongly and they support the contention that the estimates are much more accurate now than formerly. During the six months ending June 30, 1918, the receipts of hogs at the ten leading markets was greater by 484,000 or 3.44 per cent than for the corresponding months a year earlier, while for April, 1918, alone, the receipts were 615,000 or 33 per cent greater than in April, 1916.

Prices. The prices of hogs were similar in their movements to those of grain. The gradual increases which had been taking place for several years prior to and including 1914, suffered a

¹ Wallace's *Farmer*, February 22, 1918.

set-back in 1915. The highest prices of hogs¹ in Chicago in 1914 was \$10.20; in 1915, \$8.95. In 1916, a distinct advance in price occurred, the Chicago figure reaching \$11.60. The equal of this had been known but once since the Civil War, yet within a few months, on August 21, 1917, following the entrance of the United States into the world war, hogs reached the record price of \$20.00 per hundred.² Again, in August, 1918, they went above the \$20.00 mark, being on several different days preceding August 15, as high as \$20.15 per hundred.

SHEEP

Number on Farms. The number of sheep, which had been in general declining since 1900, continued in the same direction until 1917, after which there was a very slight increase as reported in January, 1918. At the beginning of the war there were 49,719,000 sheep in the United States; in 1918, 48,900,000. The 1918 figure is 2.7 per cent above that of 1917, but the increase is hardly great enough to be called significant.

Prices. In value sheep show a remarkable increase, the average value per head having been reported at \$4.04, in 1914 and at \$11.82 in 1918. This is an increase of 192.6 per cent in four years. No other live stock made an advance in price at all comparable with this, yet, even so, the number of sheep fails to increase.

Sheep in Other Countries. The decrease in the number of sheep is by no means confined to the United States. In general there has been for some years a decline. Moreover, where there are increases they do not suggest keeping up with the demand on the old basis, but only a partial meeting of the requirements. Sheep have been primarily a pioneer product, and with the disappearance of much of the range land the number of sheep has declined.

Wool, a Military Necessity. With the outbreak of war, the wool situation became serious. The world supply of wool had

¹ "Mixed and Packers." *Yearbook*, Department of Agriculture, 1916.

² Live Stock Report, Clay, Robinson & Co., December 27, 1917.

been for some years declining relatively to population. The results of this decline were reflected in higher prices of wool and woollen goods, and the tendency to use substitutes.¹ The seriousness of the wool situation can be seen in the dependence of the army upon wool as the best material for clothing and blankets. The equipment of each man in the British army requires 28 pounds, 6¼ ounces of wool. The American soldier needs no less. Thus for an army of a million men over ten per cent of the annual domestic wool clip will be needed for the first outfit.² For an army of five million men half of the annual production would be needed for one complete outfit.

Production and Importation of Wool. In the meantime each year shows a decrease in wool production of the United States below that of the year before from 1910 to 1917, although since 1914 the decrease has not been great, about 4,500,000 pounds for the three years. The amount of wool produced in countries outside the Central Powers has undergone but little change since the war began. At the same time, the Central Powers are unable to make their usual importations, amounting to about half a billion pounds per year. This leaves more than the usual supply for the Allies. The importations into the United States have been heavier than ever before. At the beginning of the war, the imports were at rather a low ebb though not so low as for several different years since 1900. The amount imported in 1914 was 248,000,000 pounds; in 1916 it rose to 535,000,000 pounds; in 1917 it dropped back to 372,000,000 pounds, but for the first eight months of the fiscal year beginning July 1, 1917, the importations were 215,000,000 pounds, which is more than the usual amount for a whole year during the past two decades. The amount imported in 1917 was greater than was ever known before the war.

Price of Wool. While the prices of sheep advanced 192.6 per cent within four years, as noted above, the price of wool advanced during the same time 168.2 per cent, or from 17.6 cents to

¹Chamber of Commerce of the U. S., April 26, 1918. Bulletin, National Association of Wool Manufacturers, No. 1, 1918.

² The production in 1916 was 288,000,000 pounds, in 1917, 285,000,000.

47.2 per pound. These figures hardly tell the story since they are based on yearly averages. The price at the end of the year 1917 was 58.2 cents per pound, or more than three times as high as at any time during the first six months of the war. These exorbitant prices have induced the government to take the matter in hand and fix a limit to the prices to be paid for wool as for various other products. The question of control is noticed briefly in Chapter V.

TABLE XII
PRODUCTION AND IMPORTATION OF WOOL, 1914-1917

Fiscal year	Production, pounds	Importation, pounds	Exportation, pounds
1913-14	296,175,000	247,649,000	1,142,000
1914-15	290,192,000	308,083,000	7,260,000
1915-16	288,777,000	534,828,000	1,804,000
1916-17	288,498,000	372,372,000	3,979,000
1917-18	285,573,000	215,000,000	.....

¹ For eight months.

TABLE XIII
LIVE STOCK ON FARMS, 1915-1918²

	1915	1916	1917	1918
Horses	21,195,000	21,159,000	21,210,000	21,563,000
Mules	4,479,000	4,593,000	4,723,000	4,824,000
Milch Cows	21,262,000	22,108,000	22,894,000	23,284,000
Other Cattle.....	37,067,000	39,812,000	41,689,000	43,546,000
Sheep	49,956,000	48,625,000	47,616,000	48,900,000
Swine	64,618,000	67,766,000	67,503,000	71,374,000

² Figures from the February numbers of the Monthly Crop Report.

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TABLE XIV

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EXPORTS OF ANIMALS AND ANIMAL PRODUCTS, 1914-1918

	Av. 1910-14	1915	1916	1917	1918
Cattle	87,625	5,484	21,287	13,387	18,213
Horses	28,173	289,340	357,553	278,674	84,765
Mules	5,125	65,788	111,915	136,689	28,879
Sheep	132,601	47,213	52,278	58,752	7,959
Swine	11,491	7,799	22,048	21,936	9,280
Beef ¹	220,223,121	383,533,055	444,053,325	411,473,025	502,000,000
Pork ²	403,833,153	604,627,526	998,094,366	1,037,140,664	³ 1,504,000,000
Lard	545,783,274	501,552,962	461,437,928	462,335,780	396,756,964
Mutton	3,539,358	3,877,413	5,552,918	3,115,576	2,098,423
Wool	153,315	8,158,300	.....	2,148,350	993,143
Hides & Skins	26,100,717	24,933,180	17,122,019	9,971,249	12,114,817
Eggs	13,169,700	20,784,424	26,396,206	24,946,424	18,969,167
Butter	4,277,955	9,850,704	13,487,481	26,835,092	17,735,966
Cheese	4,915,502	55,362,917	44,394,251	66,650,013	44,330,978
Condensed Milk	15,773,900	37,235,627	159,577,620	259,102,213	529,750,032

¹ Beef = Canned, cured, fresh, oleomargarine, oleo oil and tallow — increase particularly in canned and fresh.

² Pork = Canned, cured, fresh.

³ Including lard.

CHAPTER IV

Federal and State Aid in Production and Marketing ¹

PRODUCTION

Since the United States has substantially always been a country of surplus food production, the government has not felt the necessity of using extreme measures in its stimulation. Nevertheless, so far as production is concerned, the government has in an educational way done very much to put agriculture on a solid basis and at the same time stimulate its progress. The value of this work is clearly brought out in the recent events in connection with the efforts to encourage agricultural production during the years of the war. It has been comparatively easy to turn the machinery of the Department of Agriculture to the work of stimulating the amount of farm produce. This is being done even to the extent of encouraging production through exhortation and demonstration, without much regard to soil conservation. War is a time of destruction; of using lavishly the goods at hand with little thought as to whether or not there will be ample supply in the future. The questions requiring immediate attention are of greater consequence than those more remote.

The problems of production and conservation are perhaps equally important in the realization of results for a given year. At least they are both of primary importance. War was declared on April 6, and it became evident to the President and his advisers that food was destined to be needed in much more than ordinary quantities within the year following. Although agricultural operations were well along, so far as plans and planting

¹ Much information used in writing this chapter is in the form of letters and miscellaneous publications from State Councils of Defense and other public officials.

for 1917 were concerned, it was not altogether too late to make at least some important modifications of them. The Secretary of Agriculture called a meeting in St. Louis ¹ for April 9 and 10, only three days after war was declared. Thirty-two States were represented by sixty-five officials. It was decided to divide the work of stimulating production and promoting economy into four main divisions as follows:

1. Production and labor.
2. Distribution and prices.
3. Economy and utilization.
4. Effective organization.

It was pointed out that the world shortage of food was so clearly a fact as to make it desirable, and at the same time undoubtedly profitable, to the American farmers to bring the production of all foodstuff up to a maximum. Especially should bread grains be increased. The cultivated area should be extended wherever practicable. Likewise meat production should be expanded, and milk production increased if possible one-fourth.

To carry out the program of production would clearly call for an unusual amount of farm labor. It was urged that the government take steps to enlist "in a national service" of food production, men above military age, men unable to enter the army on account of physical defects, and boys of 15 to 19 years of age.

In order to make known the resources of the country with respect to food supplies, a survey was recommended. It was recognized that a disturbance of prices was likely to take place and with a view to holding such movement within bounds, price publicity was recommended. Moreover, it was suggested that while price fixing was not likely to be necessary for a time, the government should be prepared to fix maximum or minimum prices, even to buy and store food commodities should occasion arise. The occasion would probably be the manipulation of prices by speculators or restraints of trade by dealers.

¹ A similar conference was held at Berkeley, California, on the 13th of April.

Concerning possible economy on the part of the people, it was stated that 18,000,000 barrels of flour might be saved by putting 81 per cent instead of 73 per cent of the kernel of wheat into flour. Furthermore, that less meat and more vegetables might well be included in the diet. That milk might be used to a greater extent. That simple grain products, instead of the more refined commercial products might advantageously be used. A widespread propaganda for getting these views before the people was urged.

Since it was clearly necessary for the Department of Agriculture to do more than its usual duties in bringing about unusual results in the nature of increased product, it was necessary that added authority and also added funds be granted the Department.

Organization for the Increase of Agricultural Products

Department of Agriculture. Following the declaration of war, the food production question was at once brought to the attention of Congress and an act passed directed almost exclusively to the Department of Agriculture with a view to increasing the supplies. This was the logical way to get at the questions since it had long been the business of the Department of Agriculture to increase production. The Department has a force of many thousand employes, giving their time to experimentation, demonstrations, and education connected with problems of production. In recent years attention has been given to the marketing of farm produce. Thus the Department was well equipped for the work of furthering the production to meet the war emergency in that an expansion of work already in hand was about all that was called for, not something foreign to previous efforts. The legislation providing for the stimulation of production followed primarily the suggestions made by the Secretary of Agriculture and his advisers at the St. Louis conference. The act as passed was entitled: "An act to provide further for the national security and defense by stimulating agriculture and facilitating the distribution of agricultural products." It was ap-

proved on August 10, 1917. The main import of the act is summarized by the Department of Agriculture as follows:

Eleven million three hundred and forty-six thousand four hundred dollars to be used in stimulating production, for protecting and conserving foods, and for a survey of the country's food resources.

Staff of county agents to be increased until at least one agent will be stationed in practically every agricultural county in the United States, that will cooperate with the Department and the State agricultural college.

Women county agents for demonstration work in home economics to be increased in rural counties and similar agents to be placed in towns and cities for the first time.

Farm-help service to be extended in cooperation with United States Department of Labor to assist in bringing farmers and farm laborers together.

Country-wide survey to be made of food on farms, in storage, in shops and in homes. Estimate consumption of food to be made.

Extension of crop estimating to crops not hitherto reported and to include special inquiries to gather information on extraordinary farm conditions.

Hog and poultry production to be stimulated as far as practicable.

Increased production and conservation of dairy foods to be encouraged.

Animal diseases to be combated on larger scale.

Increased efforts to be made to combat insect pests of plants and animals.

Further steps to be taken to destroy animal pests and predatory animals which injure crops and kill live stock.

Work for the control of plant diseases to be extended.

Survey of seed supplies and needs to be made and results published so that farmers will be assisted in obtaining a sufficient supply of good seed. Seed to be purchased and sold to farmers by the Department if necessary in restricted areas.

Demonstrations to be carried out in the proper handling, packing, shipping, and marketing of perishable fruits and vegetables to decrease spoilage.

News service for various farm products to be extended so that producers and consumers can be better informed as to the supply and demand and can sell and buy with less expense, less spoilage, and less lost motion.¹

The Department of Agriculture had by no means waited the summer through to make a start in the encouragement of added food production. Already committees had been appointed to draft resolutions on the various important lines of procedure. This was done at the St. Louis conference, and while for the most part the resolutions were directed to the President and Congress, the Department of Agriculture was able to do a great deal without further authority or funds. It urged farmers to

¹ *Weekly News Letter*, August 22, 1918.

extend the acreage of cereals, especially wheat. That there was a considerable response to the appeal can not be doubted. Work was begun on the question of farm labor, and by no means least, the campaign for greater economy in the use of foods was launched.

The work of the Department of Agriculture is highly centralized. The authority for all projects, and for the most part, the direction of them, is in Washington. This fact blends very well with the program of emergency food production. For instance, there is not likely to develop a great deal of friction between the people concerned and those directing the program. As a matter of fact, there is not much authority involved in the program; it is rather one of exhortation, encouragement and assistance. This is in contrast with the Food Administration created to carry out the mandates of the Food Administration Act, which bears the same date as the Food Production Act. In general the Food Administration is, as will be shown later, a decentralized organization.

The Department of Agriculture is always in close touch with the agricultural colleges. The colleges were represented liberally in the conferences held at St. Louis and Berkeley. So close was the cooperation of the Department with the colleges that it is impossible to separate the influences of the two. The colleges in many cases took the suggestions of the Department of Agriculture and spread them broadcast over the respective States. Again there was close harmony between the Boards of Agriculture of the different States and the United States Department of Agriculture. All of these agencies united in urging the farmers to produce to the utmost, while farmers and city people alike were urged to conserve and save to the last degree consistent with efficiency and health.

Councils of Defense. Antedating the passage of the Food Production Act, was the creation of the National Council of Defense. This was done in August, 1916.¹ It was the primary purpose of the act to get some degree of mobility into the army,

¹ United States Statutes at Large, 39:650.

but it was also designed to aid in the production of whatever essentials might be needed during the interruption of foreign commerce. The Council was to consist of the Secretaries of War, Navy, Interior, Agriculture, Commerce and Labor, together with seven advisers. Not much was heard from this Council so far as production of food was concerned.

No sooner was war declared than the State legislatures took action with respect to the duties of the States and created State Councils of Defense, or similar bodies, in all States.¹ These State Councils have worked with the Department of Agriculture in promoting food production, acting in many particulars as a clearing house for both State and national effort. Plans have been made by the Department of Agriculture and carried out by the State Councils of Defense. On the other hand, many problems have been largely local and have been handled altogether by the State organizations. The Council of Defense system has been extended to include in the great majority of the counties of the United States, county councils, and below these in increasing numbers of States and counties, township Councils of Defense. In several States, particularly where agriculture is not the dominant business, municipal Councils of Defense are organized. This plan is followed in Massachusetts and New Jersey.

The main lines of agricultural work undertaken by the Councils of Defense have been the stimulation of the production of such things as are needed in greater quantities than normal production will supply. The stimulation has been of three general kinds. First, an appeal to farmers to do their best in increasing production, and particularly in increasing the production of commodities most needed. Second, assistance offered in the nature of information concerning farm help, seed, or other things required. In cases of extreme need not only is information furnished but the Council acts as a go-between in securing such commodities as seeds, buying in distant markets and selling to the farmers at cost; machinery has been furnished and financial aid

¹ In some States the Council of Defense was organized in advance of legislative enactment, by executive authority; *e. g.*, this was the case in Utah.

given. Third, closely allied to these aids in production they undertake to facilitate the sale of goods produced.

The Stimulation of Production

In the first place, the increased prices were a great stimulus to production at the time the United States entered the war. Hence whatever has taken place by way of increased production in 1917 and 1918, is the resultant of two forces, price stimulus, and patriotism plus State effort. How much is to be attributed to the one and how much to the other is, in most instances, past finding out. Both have been strongly influential.

The work of increasing agricultural production has centered very largely in the Councils of Defense, on account of the authority given these bodies, although as stated above, a large number of agencies have had a part, and often the superior part in carrying out the plans. The extent to which acreages have been increased has already been discussed. The most tangible results have come from the wheat, potato, and "war garden" portions of the program. Likewise it is a clear case that hog production has been directly stimulated. Other products have been more or less influenced without a doubt, but it is also true that the greater part of the land now in use would have continued to produce some useful crop had no effort been made to stimulate or influence the farmers. The efforts of the Councils of Defense, Department of Agriculture, and allied organizations have been directed mainly in the line of encouragement through appeals to patriotism and self-interest; gathering of information as a basis of the organization of clubs, mainly among boys and girls; assistance in procuring seed, assistance with respect to labor, and in some instances control of labor prices. In a smaller number of cases help of a financial nature has been given in the form of loans; machinery, such as tractors, have been made available; and assistance in finding, reaching, and even creating markets has been afforded. These subjects will be discussed in order.

Patriotism and Self-interest. This campaign was begun at once, and is still in progress. Farmers are urged through almost

numberless posters, newspapers, five minute speeches and bulletins, to produce every possible amount of food. It is shown that the Allies are dependent upon America for food, and that without sufficient food the war must of necessity be lost. The effect may be in doubt as to the total addition made by this means, but at all events there has been a great change in the particular products most needed, such as wheat and meat, and in a smaller way, in condensed milk and cheese, and potatoes. In the first two products the increase was induced to a great extent by a guaranteed price, while in the other cases no guarantees were made.

Gathering Information. It was evident in the spring of 1917 that the information available on the subject of food supplies, and agricultural operations, in the production of food were altogether inadequate. It was inadequate because it left the question of the amounts on hand unanswered. Therefore, the quantities to be spared for the Allies were unknown. The amounts needed for home use were likewise not accurately known. We had so long been a nation of surplus material that to calculate the needs on a narrow margin was an altogether new task.

Several States, notably New York, took a very complete agricultural census in the spring of 1917. This particular census was of great use in the settlement of such controversies as that of milk prices which was an acute question almost throughout the year. A food survey was taken as of August 1, 1917, for the country by the Department of Agriculture; a second survey was made during the winter.

By the spring of 1918, the taking of agricultural censuses was the regular order of the day. The Bureau of Crop Estimates strengthened its work greatly by getting a very large number — several thousand per State — of exact reports from farmers as a check on the usual estimates sent in by the reporters. Special censuses of seed stock were taken on a large scale, and an order was issued requiring all dealers who handle five thousand or more pounds of farm seeds annually to report to the Bureau of Markets the quantities on hand.¹ Another special census taken

¹ *Official Bulletin*, June 12, 1918.

through federal authority was of the labor supply. This was by no means an agricultural measure exclusively, but agriculture came in for its share of consideration with respect to the use to be made of labor. Some of the best lessons in the matter of information gathering are gained from the experience of such States as South Dakota and Oklahoma. In South Dakota all threshermen are required to report the amounts of grain threshed by December first. This will be, if properly administered, the most accurate accounting ever made of the amount of grain grown in a State.

In Oklahoma the assessors as a patriotic service, without additional pay, gathered information on the acreage of the 1918 crops; the amount of seed which each farmer would need to buy; the amount each would have for sale; the breeding stock on hand; the amount of labor which was likely to be needed in addition to the neighborhood supply.

These censuses have made it possible to proceed with a degree of intelligence in the distribution of essential needs beyond anything ever before known. It did away with speculation, and obviated real shortages at critical times in most instances, and allowed opportunity for substitution where there was no other alternative.

The Organization of Clubs. The plan of using the club idea in the encouragement of better methods of production has been in use for years; but the exigencies of the war have given it a new impetus. Before the war the number of members reported in boys' and girls' clubs of all sorts — corn, pig, calf, canning clubs, and the like — was less than 900,000. During 1917 the number reached was 2,400,000.¹ The increase in club work in Wisconsin is indicated by the enrollment of 6,000 boys and girls in 1916, and 32,000 in 1917.

Reports are obtained, so far as possible, from the various clubs. Of the total number, 2,400,000, for the country, 350,000 made reports showing that they had produced and conserved \$10,000,000 worth of food. This is an average of \$28.57 worth of

¹ *Weekly News Letter*, July 3, 1918

food for each member. Probably those reporting did not produce so much on an average, but even though those not reporting produced but \$10.00 worth each, it would amount in the aggregate to over \$20,000,000, making \$30,000,000, for the entire membership. The significance of this work lies largely in the fact that most of it represents labor which would otherwise not have been utilized at all fully, much of it being, therefore, almost clear gain.

County Agents and Extension Workers. The numbers of county agricultural agents had been on the increase for some years. In January, 1917, just prior to the entrance of the United States into the war, there were 1,216 county agents employed.¹ By July, 1918, this number had grown to 2,129, an increase of approximately 75 per cent. There are not quite 3,000 counties in the United States, hence there are nearly three-fourths of them provided with agents, and since many counties have almost no agriculture it means that nearly all agricultural counties have such agents.

In addition to the county agricultural agent, are other extension workers such as home demonstration agents, and club organizers. The great majority of these people are doing some sort of war emergency work. All counted, the number of extension workers on July 1, 1918, was 6,166,² an increase of over 4,000 doing such work on the same date in 1917.

Not only have the numbers of county agents increased greatly, but at the same time their duties have increased very much. They have been of great use in a wide variety of ways, prominent among which are the help given in finding suitable farm seed; treating the seed grain for the prevention of disease; the purchase and sale of live stock; cooperative buying of feeds — in short they have helped to do anything that could be done through group effort or State aid. Above all they have been effective in creating a spirit of patriotism among the farmers, helping them to

¹ Department of Agriculture, List of Workers in Subjects Pertaining to Agriculture, 1917.

² *Weekly News Letter*, July 3, 1918.

realize that the responsibility of feeding the Allies is not a matter of empty words, but a duty.

Government Aid in Procuring Seed. In years past the seed question has in very few instances been acute, and has, therefore, not required State aid or attention. During the spring of 1917 owing to some important changes in crop plans made after operations were well under way, it was not in all cases easy to get the required seed promptly. This was the case with respect to wheat, and potatoes particularly. The difficulties in 1917 were hardly more than enough to attract attention, and by that means prepare for the situation which developed in 1918. During the spring of 1917, seed potatoes were unusually scarce and dear, and State and county Councils of Defense and allied organizations aided greatly in effecting an equitable distribution of them, at the same time holding the price down. For instance in Wisconsin the State Board of Agriculture bought potatoes, shipped them to places where they were wanted, and sold them at \$3.00 per bushel, whereas the trade price at the same time was frequently \$4.00.

The great question in 1918 was seed corn, and to a much less serious extent seed wheat, and seeds for some of the minor crops. The corn crop of 1917 was the poorest on record so far as maturity is concerned with the result that seed corn was extremely scarce. In all the northern States aid of some kind in procuring seed corn was the usual thing. Several States, for example, Kansas and Massachusetts, took surveys of all seed stock. Other States took more or less complete censuses, largely through the county agents. In Iowa a seed corn census was taken by school district census takers specially appointed. Seed was bought by many States and resold at cost for cash. This was done for example in Michigan, Nebraska and Wisconsin. In Michigan seed corn was bought to the extent of \$346,000 worth. In Utah the State went still further, selling its seed, for the most part seed wheat, however, on time, taking crop mortgages as security. South Dakota, while not reporting the production of seed stands out as one of the leading States in controlling the situation. It was provided by action of the Council of Defense that

no seed corn should be sold with a germination test below 65 per cent, and furthermore prices were prescribed, averaging from \$4.00 to \$10.00 a bushel, with heavy penalties provided for higher charges. In Indiana the county agents did most of the work in finding seed corn for those in need of it, and through their influence, and the general sentiment developed in regard to the matter, the price was held down to about \$5.00 per bushel. In most States prices ranged from \$5.00 to \$10.00 a bushel with occasional instances of \$20.00. Without the machinery provided by the war emergency bodies, the price of seed corn would have been left to private initiative for the most part with the result that it would have been by no means so intelligently distributed over the country while the price left to speculation would, without doubt, have been higher on an average. As it is, the full acreage of corn was planted and the seed used was well up to the usual standard in quality. This gratifying result was due in no small measure to the unusual care with which seed was tested. In Indiana, for instance, the county agents report that tested seed has given about fifteen per cent better germination results than that untested, or carelessly tested.

In the Food Production Act passed by Congress, in August, 1917, provision was made for the use of \$2,500,000 as an emergency seed fund. The occasion for aid from the government for the year 1917 was mainly past by the time the bill became a law. In March, 1918, in a deficiency act, the appropriation for seed was increased to \$6,500,000. This was passed March 29, about the time corn planting in the southern States begins, and when the farmers of the corn belt are anxious to know where their seed is to come from. The result was that not a great deal of federal aid was available in providing the bulk of the corn for planting. One thing the Department of Agriculture was able to do, however, was to assemble seed corn at several strategic points for distribution for late planting and replanting. These plans were completed at a meeting in Chicago on May 13, 1918.¹ Nothing could better illustrate the wisdom of this safeguard than

¹ *Weekly News Letter*, June 15, 1918.

the situation following the severe frost in Indiana on June 22. The corn in many fields was killed. Although it was late it was not considered altogether too late to plant 90-day corn. The supply of such seed corn at Purdue University was immediately put to use.¹

War Gardens. The campaign for more gardens was put on early, that is to say, almost immediately after war was declared. In every city and village of any size people were urged to plant more gardens and bigger gardens. A National Emergency Food Garden Commission was appointed which undertook to systematize the work and make the appeal general and pointed. The president of this commission estimated that the value of the garden produce raised on land where nothing of the kind grew before was \$350,000,000. This would mean about \$3.50 per capita. The gardens were trebled in area, and the vegetables and fruit preserved for winter use estimated at three times the usual amount. Over a million acres of city lot land was in gardens, — the largest part of which was not previously tilled.² As to the increase in the number of gardens in 1917, it has been estimated at 2,000,000.³ Reports from State Councils of Defense indicate that the 1918 gardens are more extensive and more productive than those of 1917.⁴

Unused Land

The use of a million acres of land, largely unused previously, for war gardens shows that there has been, and no doubt still is, a considerable amount of land either unused or used for a relatively unimportant purpose. Many vacant lots reported as unused have furnished something in the way of produce before. For example, many of them have produced hay. The need of a greater food supply has brought the old question of land held

¹ Indiana Bulletin (State Council of Defense), July 5, 1918.

² Annals of the American Academy of Political and Social Science, November, 1917, p. 203.

³ C. R. Van Hise: *Conservation and Regulation in the United States during the World War*, p. 41.

⁴ Reported in correspondence. Minnesota and Oklahoma especially report increased interest in war gardens.

out of use to the fore. In Minnesota the Commission of Public Safety was asked to invoke the right of eminent domain, which it has the power to do, in order to bring vacant city and farm land into use. The Commission does not see the necessity of doing so, since it has not found it difficult to get sufficient city land for gardens, and has not found farm land held out of use. Should occasion arise, the Commission stands ready to act.

The question of unused lands has received more attention in California than anywhere else so far as can be judged by the available information. The estimate had been made in Washington that there were two and a half million acres of unused tillable land in California. The secretary of the Committee on Food Production of the Commonwealth Club of California reported that there was 700,000 acres which should be cultivated but could not be under the circumstances. An investigation into the same subject by Professor Shaw of the University of California was made, and through newspaper publicity, some 72,000 acres of land were located. About one-third of this land was found to be available for use and was rented later. About 300,000 acres of other land were reported by county agents, horticultural commissioners, and the like. On inquiry it was found that this land was being used in many cases for pasture or hay, and that the most of it was deficient in rainfall, alkaline, or in some cases too far from transportation facilities to be economically available.¹

Thus the bug-a-boo of land held out of use by speculators appears less formidable than many have been led to believe.

Farm Labor

On the question of farm labor there is a great dearth of information. There are according to the estimates of the Department of Agriculture about 14,000,000 men engaged in agriculture. Of these 20,500, or about 1.48 per cent, had been drafted before March 6, 1918.

¹ Transactions of the Commonwealth Club of California, April, 1918.

In addition to these there have been volunteers, and the farmers have lost a considerable number of laborers because the wages paid in industrial pursuits drew them away. In order to relieve the farming industry as far as possible from further drains of labor the new draft regulations have been drawn with a view of taking from the farms an even smaller proportion of men, and it is my hope that the local exemption boards will make the new classifications with a view of lightening the load upon the farmers to the utmost extent.¹

The number of men taken for the army by the draft alone would not cause any serious shortage in the labor supply, until many more were taken than were included in the first draft, but coming as it does after the ranks of farm labor have been seriously depleted by other drains, it makes a final demand that carries the supply below the barest needs. The country is imploring the farmer to increase his acreage and his yields. To increase the food supply is made to seem equal to service in the army, but how to comply with the demand is another question. The withdrawal of a given number of men is one thing viewed quantitatively. The withdrawal of the given number of men viewed qualitatively may be an altogether different matter. It is hard to replace the skilled farm laborer with such as may become available in response to increased wages. The work is not as well done, it costs much more, especially when viewed per unit of accomplishment instead of per unit of time put in by the worker.

Government Aid. With the entrance of the United States into the war, the Department of Agriculture undertook to assist in solving the labor question which was sure to arise. The Department of Labor has offices in all States and a plan was devised whereby these offices should cooperate with special farm labor agents furnished by the Department of Agriculture.² This plan has been put into practice in nearly all States. The work of the special agent is to obtain information concerning the needs of farmers and the available supply of labor in all rural communities and cities up to 10,000 inhabitants. The Department of

¹ President Wilson, *Weekly News Letter*, March 6, 1918.

² *Weekly News Letter*, February 27, 1918; *American Economic Review*, Supplement, March, 1918, p. 158.

Labor undertook to make surveys in all the more populous centers. Both organizations work with and through county agents, Councils of Defense, agricultural colleges, Boards of Agriculture, farmers' organizations, and the like.

The plan of organization was quite similar in the different States. In Ohio, for example, the State was divided into twenty-one districts, with an employment office in each district. These offices cooperated with the county agricultural agents. An inquiry sheet was circulated among the farmers asking for a statement of the labor needs. About a third of the farmers asked for help for at least some part of the year. By August 9, 1917, not less than 2,400 farm hands had been placed on farms.

Local and State Aid. The Farm Labor Bureau of Baltimore has a plan whereby men go out to the country in groups of five or six and board themselves, working for the farmers of the neighborhood. Over a hundred families from the city were placed on Maryland farms during the summer of 1917.

In several States, *e. g.*, in Maryland, Florida, West Virginia and Wisconsin, an effort to solve the labor question has been made in laws requiring all able-bodied men between the ages of twenty and fifty to work. If they do not find employment unaided the State will find jobs for them, and a heavy penalty is provided for violation of the law.

Help from the Department of Labor in furnishing farm hands is not altogether a new thing.

For several years, since 1914, it had undertaken to direct men to the parts of the country in which the demand for seasonal help, as for harvesting, is acute. At headquarters in Kansas City, 3,922 men were assigned to places during six weeks in the summer of 1916. The applicants "came from all parts of the United States and included teachers, students, miners, machinists, laborers, farmers, and professional men." They were sent into the harvest fields of Oklahoma, Kansas, and Nebraska. The work was continued through 1917 in a similar manner, but the number of men reported was somewhat smaller.¹

¹ Fourth Annual Report of the Secretary of Labor, 1916; Fifth Report of same, 1917.

The Result. The season of 1917 came and went, yet with all the talk of labor shortage the bulk of the crops were tended and gathered with little apparent loss beyond the usual. Wages indeed were higher than formerly, reaching in special cases eight and even ten dollars a day. This was induced by the unusual prices offered for the produce fully as much as by any absolute shortage of labor. For example, tobacco was selling for the unprecedented price of twenty and twenty-five cents a pound. Apples were scarce and dear. Both of these crops in some sections were threatened by frost. It was a matter of good business to pay ten dollars for help the day a severe frost was predicted if by so doing several times ten dollars' worth of produce could be saved.

The best information at hand suggested that there was a shortage of labor in Pennsylvania, ranging from none at all up to twenty-five per cent in some localities and for certain seasons.¹ In the State of New York according to a special census taken in April, 1917, there was then a shortage of regular farm help of sixteen per cent as compared with the April census of 1916. This shortage was due to the high wages offered in other industries, higher wages than farmers felt able to pay. Yet there was a feeling that more than the usual number of men was needed.² A study made in California showed the State to be short of farm labor in 1917, but how short was not determined. The advance in wages for that State, was estimated at forty per cent over the rate of 1916. At the same time there was a serious decline, perhaps twenty-five per cent, in efficiency.³

The outlook for getting the farm work done in 1918 seemed anything but bright, yet as the months have passed no calamities have overtaken the country on account of a dearth of laborers. In March Congress passed an act ⁴ permitting the War Department to grant furloughs to soldiers needed for civil employment.

¹ Philadelphia *Ledger*. December 15, 1917.

² New York State Food Supply Commission, Bulletin No. 2.

³ Adams and Kelly: *A Study of Farm Labor in California*, Univ. of California.

⁴ Approved March 16, 1918.

On April 2, the War Department issued an order permitting soldiers, not including commissioned officers, to be given furloughs for the purpose of working on farms especially during seeding and harvest times. Farmers were required to make explicit statements with respect to their needs.¹ Local registration boards have exercised a good deal of discretion in the matter of classification of men for the army and have undertaken to see that some responsible person was left in charge of each farm. They have also been able, under the rules, to defer the calling of many men until after the rush of work for the season was past, and while this may mean only temporary relief, it has been of great service.

The men from cities who have had farm experience have been an important factor in the emergency help question. In the surveys made during the winter of 1917-18, over 50,000 city men of previous farm experience signified their willingness to work on farms during harvest.² This, of course, is not a large number, but neither was it a large proportion of the city men who eventually offered to render service of this kind. The Department of Agriculture made a rough estimate that over 100,000 boys not ordinarily employed on farms worked at some kind of farm work for a longer or shorter period in 1917,³ and a much larger number are available for 1918.

It is not possible at this time to make an estimate at all accurate as to the sources of labor supply of 1918. As an example it may be mentioned that the labor agents of the government sent 18,000 men to help harvest wheat in Kansas,⁴ while many thousand more went without the aid or knowledge of the bureau. The organization of city men into clubs for farm work; the closing of business doors on certain days in harvest; the offers of labor unions to suspend ordinary work and help the farmers; these are reported the country over. Not always have the farmers taken kindly to the offers of the city men who volunteer to

¹ *Official Bulletin*, April 6, 1918.

² *Congressional Record*, 65th Cong., 2d Sess., 4584.

³ *American Economic Review*, Supplement, March, 1918.

⁴ In letter from Kansas Council of Defense.

help. A good example of this is furnished in the case of a group of city men in Missouri who offered to work but found the farmers skeptical. The men went out and shocked a field of grain at night without the owner's knowledge. This aroused the interest of the neighborhood and allayed the doubt. Almost at once telephone calls began to come in, and the volunteers had all the work they could do.¹

While it is not possible to report on the number of laborers found in unusual ways to take the place of the men called into the army, it is possible to assert that up to the close of grain harvest, in all except the very latest of the spring wheat districts, that crops are, so far as matured, safely gathered. The Councils of Defense in Iowa, Nebraska and Michigan, report that no real labor shortage is developing. These must be typical of the general situation.

No shortage does not always mean that there is the usual amount of labor available. It means that in some way the work is being done. In some cases it is done by a greater reliance on machinery. In many cases women and children are employed more than usual. No doubt in many instances plans have been made whereby not so much labor is needed, or at least not imperatively demanded. With such methods of meeting the emergency, along with the better utilization of the available help made possible by organization, and the help of city men and boys, the work can be done and is being done.² The outlook for the future in regard to farm help, is not by any means flattering. Nevertheless, the Department of Labor, assisted by the Department of Agriculture, through the State labor bureaus and county agents, with the systematic surveys from time to time will be able to anticipate all real needs. This is the first step. The second should be fuller cooperation among farmers in the use of labor. Third, better facilities for transferring labor to places where it is needed most. Fourth, using labor not ordinarily fully utilized, such as high school boys. Fifth, releasing men

¹ *Weekly News Letter*, July 24, 1918.

² *American Economic Review*, Supplement, March, 1918.

from work which can be done by women and employing the men on farms. Sixth, taking steps to see that able-bodied men work. Seventh, the fullest use of labor saving machinery.¹

Labor of some sort is still available and, even though high, the price is probably not relatively higher than the prices of the farm produce which it helps to bring to the market. With the aid now at hand, the difficulty of obtaining labor should be reduced to a minimum.

During the past six years the average monthly wage for farm help has been as follows:²

	Without Board	With Board
1912	\$29.58	\$20.81
1913	30.31	21.38
1914	29.88	21.05
1915	30.15	21.26
1916	32.83	23.25
1917	40.43	28.87
1918	47.07	34.92

It will be noticed that wages increased about 25 per cent from 1916 to 1917. The increase from 1917 to 1918 was about 20 per cent.

Financial Aid

Credit. The United States, and each separate State, has until now, almost without exception, refused to extend direct financial aid to the farmers. It has been asked many times. In the present emergency, several States have made small appropriations of money to be lent to farmers who for the time seem unable to finance themselves. Maine, in the spring of 1918, appropriated \$250,000 for this purpose. Mention has been made of the sale on time, by the State, of seed grain, to Utah farmers. In Utah, also, State money was advanced to help an irrigation project out of a difficulty and enable it to go ahead with farming operations.

The federal government has made two moves in the interest of farm finance. In the spring of 1918 Congress granted to the federal Farm Loan Board a sum of \$200,000,000 in order that

¹ *Weekly News Letter*, January 2, 1918.

² Department of Agriculture, March Crop Reports for each year. These estimates are made by the crop reporters and should be fairly accurate, and at least comparable one year with another.

the federal farm banks might not run short of funds. It had seemed that the sale of farm mortgage bonds might not be easy in the face of such attractive offerings as were being made of United States bonds. At the same time, the interest rate on the farm mortgage bonds was increased and it is reported that they are in demand by the wealthy investors. The second move on the part of the federal government to aid the farmer financially was an order of the President authorizing the Treasury Department, acting with the Department of Agriculture, to advance \$5,000,000 to farmers who have suffered losses for two successive seasons from drought. The loans will be handled through the federal land banks. No farmer may borrow more than \$3.00 per acre on grain which he proposes to sow for the 1919 crop, nor over \$300 as a maximum. It is not intended to make these loans to farmers who are able to borrow locally on their own credit. A grave danger in State loans of this kind is that farmers may be unduly encouraged to continue operations on land which should not be cultivated at all. Further financial help will be accorded a larger number of farmers through the action of the War Finance Corporation which proposes to advance money to banks and trust companies which have made loans to farmers and cattlemen.¹ Another indirect means of helping the farmer out of financial difficulties is through more liberal terms with respect to the rediscounting of paper by the federal reserve banks.

The Ohio State Council of Defense discovered that the State Industrial Commission was about to invest \$1,000,000 of State funds in bonds. The Governor of the State ordered that the money be deposited in country banks, and the State superintendent of banks directed the country bankers to offer full financial aid to farmers. The bankers were asked to charge not to exceed 6 per cent interest.

Governmental Aid in Farm Equipment. This is closely related to financial aid, but may differ from it in that the farmer may

¹ *Weekly News Letter*, August 7, 1918.

not wish to own the equipment in question. This is the case with respect to small farmers who may desire the use of a farm tractor but may not care to own one. Again it may not be so much financial aid that is wanted as a chance to buy the required article, such as fertilizer.

One of the most apparent needs of the farmer who has been left short of help by the war, or who on the other hand, wishes to expand his farming operations, is for more adequate machinery. Horses are expensive to keep, and in some respects seem slow. As a result, the tractor is coming into favor in many sections of the country. However, the tractor is not altogether a true and tried friend, and at best costs a big sum of money. Several States undertook to help the farmers either to buy or rent these machines. The Council of Defense of the State of New York purchased 40 tractors to be hired out to the farmers at given rates per hour. Competent operators were in charge. The Michigan Council of Defense made a contract with Henry Ford and Son for 1,000 tractors to be sold to the farmers at factory cost, \$750 each. While but 550 of these were disposed of by the Council, a great many more were sold on the same basis by Ford agents. Not only was this true in Michigan, but they were on sale in other States at the same prices. In Ohio, the State Council of Defense cooperated with tractor manufacturers in the encouragement of sales. It was planned to sell 1,500 tractors to farmers during the year 1918. It was reported that the goal was likely to be reached. A tractor school was conducted, which 2,000 farmers attended. Smaller schools were held in various counties. The main object in introducing so many tractors is to replace man power.

In a less direct way, several States are instrumental in adding to the farm equipment by stimulating the farmer's interest and perhaps finding credit for him. This is conspicuously true in the encouragement given to silo building. In Iowa the State Council of Defense has solicited funds with which to conduct a silo campaign, urging farmers to build. In Indiana county meet-

ings are held and definite numbers of silos suggested for the county. The plan is to induce the building of 10,000 silos in time for the 1918 crop of corn.

The Fertilizer Situation. There are three primary fertilizer materials used in "commercial fertilizers." These are nitrates, phosphates, and potassium. The cotton, tobacco, truck and citrus fruit growing districts of the United States have for years been greatly dependent on fertilizers of this kind. The main sources of supply have been Chile for nitrates, Germany for potassium, while phosphates have been found in abundance in the United States.

Before the war, we were importing a million tons of potassium from Germany, which country had a virtual monopoly of the world's available supply. In 1913, muriate of potash from Germany sold here for \$39 a ton. In 1915 so desperate had the situation become that it was quoted at \$500 a ton.¹ Importations had virtually ceased.

At present, we are getting along on a very short supply of potassium. The natural deposits in this country thus far discovered are very small, and in some instances hard to work. There is strong hope of being able to recover potassium largely from the wastes of wool and wood, and from cement manufacture and blast furnaces as a by-product. The most hopeful of all, however, is the use of sea kelp which contains a large percentage of potassium salts. The government is experimenting with all of these possible sources of supply with a view to furnishing the needed potassium from our own national resources as rapidly as possible.¹ In the meantime, how great will be the loss in agricultural production due to a lack of potassium fertilizer is a matter of conjecture.

The nitrogen situation while perhaps no more acute than that with respect to potash, seemed a little more possible of solution and for this reason an attempt was made by the government to aid in the matter. Since the nitrates were to be obtained in Chile, it was a question of shipping and price, both of which

¹ *Yearbook*, Department of Agriculture, 1916, p. 301.

could be managed more advantageously by the government than by private enterprise.

The Food Control Act, August 10, 1917, authorized the President to use \$10,000,000 in the purchase of nitrates for fertilizer to aid in the production of crops during 1917 and 1918. It was too late to do anything for the 1917 crops, but measures were at once taken for the use of the fund with which to make the purchases for the 1918 crop. The appropriation was sufficient for the purchase of about 100,000 to 130,000 tons of Chilean nitrate. The Department of Agriculture has charge of the distribution of it. The high prices at which it must be sold, about \$75.00 per ton, in order to cover the expenses, preclude the use of it for general purposes and restrict it mainly to that of fertilizing truck and market garden land. The amount which can be handled with the money available is little more than a third of the normal quantity used.

The excessively high prices at which the nitrate is being held are said to be due to the high price of fuel needed in its production in Chile. Could the Chileans get cheaper fuel we would get cheaper nitrate.¹

The Department negotiated for 120,000 tons, but was able to deliver but 75,000 tons. The remainder of the 120,000 tons purchased will be shipped, but of course will be much too late for use in 1918. The demand for nitrates for munition purposes is so great, that it is doubtful whether there will be any considerable quantity available for fertilizer next year.²

MARKETING

Much attention has been given to the subject of marketing, mainly from the standpoint of possible economies. The agencies doing this work are primarily the Bureau of Markets, various agricultural colleges, and Councils of Defense. The Bureau of Markets has merely enlarged its scope; the colleges, likewise, have

¹ Smith and Haines: *The Farmers' Prospects of a Nitrate Supply*. Manuscript report to the Food Administration, December, 1917.

² *Weekly News Letter*, August 7, 1918.

gone ahead with work very similar to that which was already in progress, although some of them have practically begun at the beginning; the Councils of Defense have taken hold of the marketing work where emergencies have virtually demanded it. In addition to these agencies many city boards of commerce have undertaken to aid in marketing by installing or encouraging the installation of municipal markets. Also various civic bodies such as women's clubs have assisted locally in many phases of marketing.

• *The Bureau of Markets*¹

It would be altogether impossible to separate the work of the Bureau of Markets as it was developing before we entered the war from its special undertaking brought about by the war conditions. Many projects were already under way which have been found extremely useful and which have on that account been hastened to greater development in order to meet the needs. Marketing problems had for several years been recognized as of paramount importance, but with the unprecedented problems brought about in 1917, it was evident that marketing was in some cases not merely as important as production, but was the whole question of the supply of necessary goods, since goods not marketed are nonexistent so far as use is concerned. The Bureau of Markets can not solve all marketing questions, but it has been found extremely helpful in the solution of many of them.

The work of the Bureau of Markets has been closely associated with the Food Administration and the various State emergency organizations. Much marketing information has been imperatively needed by the Food Administration in order to carry its plans into effect, and to a great extent the Bureau of Markets has been able to furnish it.

The work of the Bureau of Markets may be discussed under three heads: Investigational and demonstrational service and regulation.

¹ The information concerning this bureau is drawn mainly from one of its own bulletins entitled "What the Bureau of Markets is Doing to Help in this War Emergency."

The early studies of the bureau were mainly in the line of investigations of marketing conditions and facts. The war emergency has not stopped work of this kind but has put the emphasis on the service and regulation features. Investigations are demanded in such fields as the cost of production of many products. This is because of the faith of many people in cost of production as the determining factor in prices, and which must therefore be known if prices are to be fixed by governmental authority. For these purposes it has been necessary to rely mainly on studies already made.

Investigations. Investigations have been made, during the past year, especially with respect to immediate results. Prominent among these are studies of the processes of handling and shipping perishable commodities, the questions of packages, of refrigeration, of expedition in movement, of goods. A study of prices and quality of creamery butter ¹ is a good example of work of an investigational nature carried on by the Bureau of Markets, and which has a greater significance on account of the war and the interest in high prices, but which would no doubt have been made in substantially the same form had there been no war.

Service. The work of the bureau which has conformed closely to emergency demands is in furnishing a market report service, and in enforcing regulation measures. The market report service was started some months before we entered the war, and had proved its worth in the marketing of perishables. During 1917, its scope was very greatly widened. While of great interest, the market report system in connection with perishables does not bear very directly on the war. Briefly it consists in gathering from the railway division superintendents each evening a report of freight shipments on their respective lines. These reports are prepared for mailing during the night and sent out from several different centers the next morning. At the end of each week a review of the week's shipments and prices is published.

The news service is applied in a very similar manner to

¹ Bulletin No. 682 (Bureau of Markets).

the marketing of dairy and poultry products.¹ A system of reporting seed stocks and prices promises to be of assistance in the future. Certainly it would have been worth millions of dollars to the country had it been well organized at the time the war began.

Something closely akin to the news service in connection with perishables has been developed for live stock and meat. The need of increasing the supply of meat was recognized as soon as we entered the war. The Bureau of Markets very promptly organized a system of reporting the amounts of meat and eggs, in all the important cold storage houses of the country. Also the state of the trade and current prices are reported daily from about six great cities. Since the terms in use by the trade do not have the same meaning in all markets the bureau is undertaking a standardization of terms.

For live stock the bureau has undertaken the important task of reporting the leading facts concerning feeding stock and finished stock whereby it is possible for interested parties to learn what is being done at a given time, and what is likely to develop in the near future. A beginning has been made in getting information on the stock which is marketable at a given time.

With respect to live stock shipping an important arrangement has been effected concerning the time of arrival of the stock. For many years the custom of shipping so as to get to market Monday or Wednesday has been prevalent. In December, 1917, the special committee on national defense of the American Railway Association requested the Bureau of Markets to advise the live stock interests that shipments would be accepted according to zones whereby the arrival of the stock would be so timed as to spread it over the week more evenly. Local railway agents were advised to accept shipments from points within 300 miles of Chicago for arrival there on Tuesdays, Thursdays, Fridays and Saturdays only. Stock more distant, but requiring not over 36

¹ A monthly report is being made on all dairy product manufactures, of great use in the direction of production and conservation.—*Weekly News Letter*, June 19, 1918.

hours for transit were shipped for arrival on Sundays. This was a change the farmers had been asking for, and while the packers did not object, the difficulty was to bring it to pass. The authority of the government together with the cooperation of the railroads was able to accomplish the reform with no delay.¹ There were many disadvantages and few, if any, advantages in the congestion of stock at the yards during the first half of the week. During February, 1918, under the new arrangement, instead of heavy arrivals on Monday, the percentage of the week's receipts for that day were reduced almost half, while the Tuesday and Thursday receipts were almost equal to that of Monday, Tuesday's percentage being double that of 1917.²

The bureau furnishes information concerning hay and grain in a manner similar to that noted above for other commodities. The reports show the stocks in dealers hands, receipts and shipments, and prevailing market prices. This information has assisted in the saving of much "back haul" by finding the nearest available stock for a given market instead of dealing mainly through a central market from which much reshipping is always necessary. The information regarding hay and grain has been of great value to the War Department.

Standardization. Much commendable work is being done in establishing standards. This was provided for in the Food Production Act. During 1917, an act was passed at the instance of the Bureau of Markets providing for the standardization of a great number of containers for fruits and vegetables. Now for the first time, all interstate shipments of fruits and vegetables must be in standard containers. This provision will probably result in the use of standard containers for shipments within States also.³ Manufacturers are already discontinuing the making of short measure containers.⁴ A system of grading potatoes

¹ The agricultural situation for 1918. Department of Agriculture, Office of Secretary. Circular No. 84.

² *Live Stock and Meat Trade News* (Bureau of Markets), Chicago, March 6, 1918.

³ *Weekly News Letter*, April 24, 1918.

⁴ *Ibid.*, July 24, 1918.

to standard size was put into vogue in several States during the spring of 1918. And perhaps as important as any of these, the Grain Standard Act, passed several months before we entered the war, was put into effect. By these acts and departmental orders, standardization is being brought about with a rapidity not previously imagined.

The Warehouse Act, in 1917, puts the cold storage and common storage houses of the country clearly in the public utilities class. They are required to store for any one without discrimination; must not issue certificates without actual holding of the product; must make reports to the Secretary of Agriculture. Under the operation of this act the Bureau of Markets is enabled to publish from time to time an authentic report on the amount of foodstuff in storage.

The regulation duties of the bureau consist in responsibilities in connection with the enforcement of the above mentioned acts.

The Grain Standard Act, passed in 1916, is being put into practice and furnishes information such as could not otherwise be had. The importance of such information in time of war is invaluable.

Motor Trucks. The congestion of freight traffic on the railroads had led to the development of many motor truck freight lines. Good roads are of course essential for satisfactory motor truck service, but where the roads are usable in all, or nearly all, weather conditions, the development of motor truck freight service seems assured. The Bureau of Markets has made investigations as to the possibilities of motor truck freight service, and in some instances has supervised shipments. A motor truck route from Vineland, N. J., to New York City has been established over which trucks travel regularly, picking up eggs from producers and delivering them, direct to wholesale dealers in New York City. The first load went through without a single egg being broken and made better time than express shipments.¹

The Bureau of Markets has opened offices in several cities as clearing houses for information of both producers and motor

¹ *Weekly News Letter*, June 5, 1918.

truck operators in order to facilitate the work of moving produce.¹

Railway Service. The bureau has done much work in connection with railway transportation. One question which it has helped the railway management to solve is that of freight embargoes and the exceptions that should be made in favor of agricultural products. The bureau has put before the Commission on Car Service of the Railroad Voluntary War Board, and later the Director General of Railroads, prompt and accurate information with respect to the need for cars in many particular sections; not only the shipment of products has been facilitated but also the shipment of supplies needed by farmers. The efficient use of cars has been the end sought in all instances. This work is in the formative stage, it being planned to develop it much further.²

Efforts to Bring About a More Direct System of Marketing

This work is being done by the Bureau of Markets, State Councils of Defense, and various civic organizations, the latter usually of a local character. The work of the Bureau of Markets in this regard consists mainly in making reports which appear in the city papers. By this means those interested in the market know the leading facts as to supplies and prices. Many Councils of Defense have marketing committees which undertake to aid in solving marketing problems. One of the most thoroughly organized committees of this kind is in Pennsylvania. Over thirty farmer curb markets were established in this State during 1917, and for the most part were a success. County food surveys were in progress with a view to marketing all food possible within the county.³ Efforts are being made to furnish growers information which will enable them to market profitably food which would otherwise be a drag on the market. Assistance is given in the matter of relieving congestions of foodstuff in city markets, the plan being to get it into the hands of people who are

¹ *Weekly News Letter*, June 26 and August 7.

² "What the Bureau of Markets is Doing to Help in this War Emergency."

³ *Annals of the American Academy of Political and Social Science*, November, 1917.

able to take care of it without waste. Much has been done in developing the cash and carry plan. Also model stores have been organized, all unnecessary costs being eliminated.

A very effective kind of help has been rendered on several occasions by putting on a "drive" for the consumption of some article likely to go to waste. This was done for potatoes, in several States, particularly in those having the surpluses, as Michigan, Wisconsin, Pennsylvania, and Idaho.

One of the most elaborate efforts in the direction of economy in marketing is reported from Maine.

Maine has organized definite machinery for the marketing of its 1918 crops with a view to increasing the State's consumption of its own soil products. At a recent meeting of the State committee on food production and conservation a marketing committee was appointed. A bureau of information is to be established to deal with prices and output of farm products. At the close of the 1918 harvest a survey will be made of the crops by counties through committees and organizations that already exist. A survey is to be made immediately of the markets of the State to ascertain their requirements of produce grown in Maine, this work being undertaken by boards of trade, chambers of commerce, labor organizations, and committees of public safety.¹

The cooperation between State colleges of agriculture and the Bureau of Markets whereby a marketing agent is stationed in the State has experienced a rapid growth. About half of the States are now on this basis. As examples of the work it may be noted that in Kansas and Iowa, State clearing houses have recently been established furnishing information on farm produce for sale by farmers. This plan if it can be made to work should eliminate a considerable part of the middleman charge in connection with the goods in question.

A great many local organizations, such as women's clubs, have inspired the opening of municipal markets. The information concerning the operation is not available. Many of them have succeeded so far as continuing to run is concerned. On the other hand, the problem of the municipal market is not a simple one, and whether these newly founded organizations will hold together

¹ Agricultural index, July, 1918.

after the impetus given them by the war is gone is a question. At present the unpaid service of a large number of public spirited women is a factor, probably a deciding factor in their success.

The interest in cutting down prices has stimulated the attention given to direct shipments of foods by parcel post, though without any prospect of making such marketing practicable for any considerable number of farmers. On the other hand, the savings resulting from the cutting down of delivery costs in the cities, through "cash and carry," charge for delivery, and cooperative delivery, promise much in the way of ultimate savings which eventually must benefit both producer and consumer.

CHAPTER V

The Federal Food Administration

No sooner had we formally entered the war than it was recognized by the governmental authorities that the exigencies of the case with respect to a continuance of food supplies at prices within reach of the people demanded prompt action.

THE PRESIDENT MAKES RECOMMENDATIONS

The President was not willing to trust to a *laissez-faire* policy, believing that the laws of competition would be so hedged about by the affairs of war as to prevent their free play. The experience of Europe already in its third year, in dealing with the food situation, showed plainly that the occasion for concern in the matter of both the supply and the cost of food was very real. The imagination of the speculators was clearly capable of prompting them to take hazardous chances on purchases at high prices. This was illustrated in the rise in wheat prices to \$3.45 a bushel within a few weeks after war was declared, flour at the same time reaching \$17.00 a barrel at wholesale.

The President asked for legislation giving him extraordinary power over the food supplies of the country.¹ These powers embraced the taking of censuses of stock on hand, questions of hoarding, of manufacture, sale and use. Nothing could be more comprehensive. He asked for supreme authority over the whole category of foodstuffs from the raw state to the finished article, covering all business relationships, and likewise the kinds and amounts of foods that should be consumed. The latter question had almost never been viewed by the American people as anything which the State could control; it was looked upon as a per-

¹ Statement issued by the President, May 19, 1917, *Weekly News Letter*, May 30, 1917. See also *ibid.*, April 25, 1917.

sonal matter entirely. People were supposed to have a right to anything which they could pay for. Now it was proposed to put the matter on an entirely different basis, it no longer being a question of individual right, or ability to buy, but the large question of sharing with our Allies. The amount of food available in the spring of 1917 was alarmingly meager, taking the countries west of the Rhine into account. Not only was it imperative that America produce every bit of food possible, but it was equally necessary that the food produced should be used economically. It was necessary not only that food be provided for the Allies, but as a practical problem it was necessary to make the division between home people and Allies on the basis of the character of the food and its ability to stand shipment. This meant a change in the diet of the American people. Under ordinary circumstances such a change as this could not conceivably be brought to pass in many years. The President proposed to bring it to pass within a few months.

Believing that the work of administering the proposed law should be in the hands of some one other than the Secretary of Agriculture on whom such important duties with respect to food production were sure to be laid, the President proposed the creation of a federal Food Administration, and several months in advance asked Mr. Herbert Hoover to act as Administrator. It was pointed out that the Food Administration could not grow into a bureaucracy since it will automatically end at the close of the war. Moreover, it is manned largely by unpaid workers.

THE FOOD ACT

Very promptly a bill was introduced in the House by Mr. Lever, embodying the substance of the requests of the President. A similar bill was introduced in the Senate on June 23, and the measures were debated for the greater part of two months. After a conference committee struggle lasting about two weeks, the bill passed, and on August 10 was approved by the President. The act is known formally as "An act to provide further for the national security and defense by encouraging the produc-

tion, conserving the supply, and controlling the distribution of food products and food." The leading features of the act, so far as they pertain to agriculture and food control, are as follows:

Sec. 1. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That by reason of the existence of a state of war, it is essential to the national security and defense for the successful prosecution of the war, and for the support and maintenance of the army and navy, to assure an adequate supply and equitable distribution, and to facilitate the movement of foods, feeds, fuel including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds and fuel, hereafter in this act called necessities; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulations, and private controls, affecting such supply, distribution and movement; and to establish and maintain governmental control of such necessities during the war. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred and prescribed. The President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this act.

Sec. 4. That it is hereby made unlawful for any person wilfully to destroy any necessities for the purpose of enhancing the price or restricting the supply thereof; knowingly to commit waste or wilfully to permit preventable deterioration of any necessities in or in connection with their production, manufacture, or distribution, to hoard, as defined in section six of this act, any necessities; to monopolize or attempt to monopolize, either locally or generally, any necessities; to engage in any discriminatory and unfair, or any deceptive or wasteful practice or device, or to make any unjust or unreasonable rate or charge, in handling, or dealing in or with any necessities; to conspire, combine, agree, or arrange with any other person (a) to limit the facilities for transporting, producing, harvesting, manufacturing, supplying, storing, or dealing in any necessities; (b) to restrict the supply of any necessities; (c) to restrict distribution of any necessities; (d) to prevent, limit, or lessen the manufacture or production of any necessities in order to enhance the price thereof, or (e) to exact excessive prices for any necessities; or to aid or abet the doing of any act made unlawful by this section.

Sec. 5. That, from time to time, whenever the President shall find it essential to license the importation, manufacture, storage, mining, or distribution of any necessities, in order to carry into effect any of the purposes of this act, and shall publicly so announce, no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, manufacture, storage, mining, or distribution of any necessities as set forth in such announcement, unless he shall

secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission of reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business of licensees. Whenever the President shall find that any storage charge, commission, profit, or practice of any licensee is unjust, or unreasonable, or discriminatory and unfair, or wasteful, and shall order such licensee, within a reasonable time fixed in the order, to discontinue the same, unless such order, which shall recite the facts found, is revoked or suspended, such licensee shall, within the time prescribed in the order discontinue such unjust, unreasonable, discriminatory and unfair storage charge, commission, profit or practice. The President may, in lieu of any such unjust, unreasonable, discriminatory, and unfair storage charge, commission, profit, or practice, find what is a just, reasonable, nondiscriminatory and fair storage charge, commission, profit or practice, and in any proceeding brought in any court such order of the President shall be prima facie evidence. Any person who, without a license issued pursuant to this section, or whose license shall have been revoked, knowingly engages in or carries on any business for which a license is required under this section, or wilfully fails or refuses to discontinue any unjust, unreasonable, discriminatory and unfair storage charge, commission, profit, or practice, in accordance with the requirement of an order issued under this section, or any regulation prescribed under this section, shall upon conviction thereof, be punished by a fine not exceeding \$5,000, or by imprisonment for not more than two years, or both; *Provided*, That this section shall not apply to any farmer, gardener, cooperative association of farmers or gardeners, including live stock farmers, or other persons with respect to the products of any farm, garden, or other land owned, leased, or cultivated by him, nor to any retailer with respect to the retail business actually conducted by him, nor to any common carrier, nor shall anything in this section be construed to authorize the fixing or imposition of a duty or tax upon any article imported into or exported from the United States or any State, Territory, or the District of Columbia; *Provided further*, That for the purposes of this act a retailer shall be deemed to be a person, copartnership, firm, corporation, or association not engaging in the wholesale business whose gross sales do not exceed \$100,000 per annum.

Sec. 6. That any person who wilfully hoards any necessities shall upon conviction thereof be fined not exceeding \$5,000 or be imprisoned for not more than two years, or both. Necessaries shall be deemed to be hoarded within the meaning of this act when either (a) held, contracted for, or arranged for by any person in a quantity in excess of his reasonable requirements for use or consumption by himself and dependents for a reasonable time; (b) held, contracted for, or arranged for by any manufacturer, wholesaler, retailer or other dealer in a quantity in excess of the reasonable requirements of his business for use or sale by him for a reasonable time, or reasonably required to furnish necessities produced in surplus quantities

seasonally throughout the period of scant or no production; or (c) withheld, whether by possession or under any contract or arrangement, from the market by any person for the purpose of unreasonably increasing or diminishing the price; *Provided*, That this section shall not include or relate to transactions on any exchange, board of trade, or similar institution or place of business as described in section thirteen of this act that may be permitted by the President under the authority conferred upon him by said section thirteen; *Provided, however*, That any accumulating or withholding by any farmer or gardener, cooperative association of farmers or gardeners, including live stock farmers, or any other person, of the products of any farm, garden, or other land owned, leased, or cultivated by him shall not be deemed to be hoarding within the meaning of this act.

Sec. 11. That the President is authorized from time to time to purchase, to store, to provide storage facilities for, and to sell for cash at reasonable prices, wheat, flour, meal, beans, and potatoes; *Provided*, That if any minimum price shall have been theretofore fixed, pursuant to the provisions of section fourteen of this act, then the price paid for any such articles so purchased shall not be less than such minimum price. Any moneys received by the United States from or in connection with the disposal by the United States of necessities under this section may, in the discretion of the President, be used as a revolving fund for further carrying out the purposes of this section. Any balance of such moneys not used as part of such revolving fund shall be covered into the Treasury as miscellaneous receipts.

Other sections of the act give the President power to limit and regulate or prevent speculation or manipulation of prices, and to prescribe the limitations within which boards of trade or similar organizations may act. To guarantee a price for wheat, for periods not to exceed eighteen months, which will insure producers a reasonable profit, an absolute guarantee of \$2.00 a bushel for the 1918 wheat crop was provided.

No food, food materials, or feeds should after thirty days be used in the manufacture of distilled liquor. Furthermore the President is authorized to limit the amount of alcohol permitted in the manufacture of malt or vinous liquors or even to prohibit their manufacture.

The President was authorized to take over and run in the interest of the public any factory, plant or packing house.

These are broad, far-reaching, fundamental powers such as have never been granted to any other President.

The first act of the President in putting the new program into effect was the appointment of Mr. Hoover as Food Administra-

tor. In contrast with the highly centralized organization of the Department of Agriculture, the Food Administration was organized with a central group for determining policies but with local State Food Administrators for putting the policies into effect. The State Food Administrators in turn work through county Food Administrators, and recently below the county organizations in many places, municipal and township Councils of Defense carry the work of the Food Administration to the people in a personal and neighborly manner. By this means there is almost no feeling that the restrictions are imposed by autocratic power from above. The series of administrators are shown the reasonableness of the requests and they in turn explain the case to their friends and neighbors by which means a solidarity of purpose, a mutual understanding, is built up such as could hardly result from the workings of a centralized department with its agents coming into communities from the outside, and taking orders from a distance. Again, a source of strength to the Food Administration is the fact that it is composed almost altogether from Mr. Hoover down to township officials, of unpaid workers.

MR. HOOVER'S POLICIES

In his first statements to the public, Mr. Hoover made his policies plain. He declared that:

We can not and we do not wish, with our free institutions and our large resources of food, to imitate Europe in its policed rationing, but we must voluntarily and intelligently assume the responsibility before us as one in which every one has a direct and inescapable interest.¹

It seemed unwise to say to the American people that they should at once come to a rationing basis. Mr. Hoover made it clear that the main foods needed for export were wheat, flour, beef, pork and dairy products. Yet these were the mainstays of regular diet with most Americans. The plan was to depend mainly on the voluntary cooperation of the people to bring the desired results to pass.

The Food Administration and its work may be considered un-

¹ U. S. Food Administration, Bulletin No. 6.

der four heads: Organization, Conservation, Control and Enforcement.¹

ORGANIZATION

The organization has been described in broad outline above. It consists of:

I. The federal Food Administration, responsible to the President.

II. State Food Administrators in all States, responsible to the federal Food Administrator.

Working with the federal Food Administrator are over a thousand persons. These are grouped into various units, having charge of specific lines of work, prominent among which is home economics, having charge of questions of dietetics, the economical use of foods, cooking and canning recipes, and so on. One of the first subordinate organizations was the Grain Corporation for the purchase of wheat, flour, beans, and other such supplies for the Allies and for the government. This corporation was given a capital of \$50,000,000. A "Fair Price" Committee was appointed to determine what ought to be the price of wheat during the remainder of the year 1917-18. There is a Meat Division, a Mechanical Department for Milling, a Grain Threshing Division, a Committee on Milk Production and Consumption. Many committees are formed for specific duties which may be performed within a few weeks and the occasion for the continuation of the committee cease. Such was the case with the Committee on the Cost of Sugar Beet Production. A very important function is performed by the Advisory Committee of Agricultural and Live Stock Producers. This committee was appointed in the spring of 1918, and consists of twenty-five leading farmers, farm organization representatives, and agricultural college men.

CONSERVATION

Several weeks before the passage of the Food Administration Bill, Mr. Hoover, who had been asked by the President to become

¹ Enforcement is in the nature of police duty and is not here discussed.

the Food Administrator in case the bill should be passed, announced his policy with respect to food conservation and the relation of the Administrator to the people of the country in that regard. His views are expressed in "Five Cardinal Principles":¹

First. That the food problem is one of wise administration and not expressed by the words "dictator" or "controller" but "food administrator."

Second. That this administration can be largely carried out through the coordination and regulation of the existing legitimate distributive agencies of the producers, distributors, and consumers.

Third. The organization of the community for voluntary conservation of foodstuffs.

Fourth. That all important positions, so far as may be, shall be filled with volunteers.

Fifth. The independent responsibility of the Food Administration directly under the President, with the cooperation of the great and admirable organization of the Department of Agriculture, the Department of Commerce, the Federal Trade Commission, and the railway executives.

I conceive that the essence of all war administration falls into two phases:

First. Centralized and single responsibility.

Second. Delegation of this responsibility to decentralized administrative organs.

The active accomplishment of the conservation policy was to be carried into effect by one of two methods: voluntary, or should that fail, compulsory.

The compulsory method has been in vogue in Europe, particularly in the Central Monarchies, almost from the beginning of the war. - It is also in vogue to a lesser extent in the countries of the Allies. It was Mr. Hoover's plan at the first to proceed almost entirely on the volunteer basis, believing that as readily as people could be made acquainted with the necessity of the case they would conform to the requests of the Administration.² While there have been some modifications of this general plan, it is still, for the most part, the basis of the work of the conservation actually in practice and it is getting results. The outstanding exceptions to the voluntary plan of conservation are those of the wheat and sugar control, discussed below. It would be almost impossible to administer an effective, compulsory, rationing sys-

¹ Food Administration, Bulletin No. 1, p. 8.

² *Ibid.*, p. 11.

tem of a comprehensive kind in this country for several reasons. In the first place, half of our people are rural, a third actually on farms. The great share of this portion of the population have first-hand access to a large part of the food supply, and could use it in spite of any rules of the government were they so disposed. The food which goes through some process of manufacture, such, for example, as sugar, lends itself to control very easily in comparison with poultry, eggs, potatoes, or even meat, all kinds considered. It was then upon voluntary conservation that the Food Administration decided to put its main dependence. The leading exceptions to this are the instances of virtual compulsory limitations put upon the consumption of sugar and flour. The methods of carrying the voluntary conservation into effect have been mainly two:

- (a) Cooperation of established agencies.
- (b) Direct appeal to the consumer.¹

Cooperation of Established Agencies

The Food Administration has worked through every possible established means of reaching the people, creating the State food administrations as an intermediary. The leading organizations coordinated in this work are the following:

1. State food administrations.
2. Trade organizations and commercial concerns.
3. Educational institutions.
4. Women's organizations.
5. Libraries.
6. Religious and fraternal organizations.
7. Hotels and restaurants.
8. Transportation companies.

The State Food Administrations of each State are responsible to the State's administration division of the federal Food Administration, and connects the federal authorities with the State and

¹ The discussion of these two topics is based mainly on *Conservation and Regulation in the United States during the World War*, p. 70 ff. Charles R. Van Hise.

county Councils of Defense. The State Food Administrator is in nearly all cases the embodiment of authority to all the people of the State. Occasionally there is a direct appeal to the federal Food Administration, as in the case of the milk price questions during the winter of 1917-18.

Trade Organizations. The trade organizations dealing primarily in food materials almost at once took an interest in the great questions of food conservation and very generally manifested a desire to make themselves useful. Grocers' organizations representing approximately 360,000 individuals agreed to lend their aid. Representatives of these organizations adopted the following resolutions:

(1) We will, whether licensed or not, cooperate with the United States Food Administration in every way possible to insure the enforcement of its rules and regulations and the success of its conservation plans, and deliver to the consumers of the United States the necessities of life as cheaply as it lies within our power to do. We will earnestly and vigorously recommend all other retail grocers to pursue this course steadfastly.

(2) We recommend that retail grocers discontinue the soliciting of orders during the period of war.

(3) We recommend the limitation of all deliveries to one a day to any one family or on any one route.

(4) We recommend that under conditions and in localities where it is feasible, the cooperative system of delivery be employed.

(5) We urge all retailers and their clerks to concentrate their efforts in selling wholesome and nutritious substitutes for white flour and meat.

(6) We recommend that the retailers use their efforts to sell articles of food that are cheap yet of good quality in the place of high price staples, and that in doing so they be guided by the recommendations of the Conservation Department of the Food Administration.

(7) We urge the most strict economy in the conduct of all retail grocery methods to the end that time, energy, fuel, equipment, and men may be conserved, and that the wholesome food may be placed in the hands of consumers at the lowest possible prices.

(8) We recommend that retailers throughout the country and their associations, local, State, and national, cooperate to the fullest extent with the United States Food Administration and that they immediately express their purpose so to do by communicating direct with the Administration in Washington.

(9) We express our appreciation of the support that has been given the food conservation work by the trade papers of the country and earnestly solicit their continued cooperation with the Food Administration.

(10) We recommend that all retail grocers assist in the potato campaign of the Food Administration by urging the sale of that commodity this season.

(11) We urge that all food products where possible be sold by weight in reasonably large quantities and for cash.

(12) We recommend that all retailers urge the sale of such items as small prunes, cornmeal, oatmeal, rice, hominy, and similar articles in bulk.

(13) We ask all retailers to urge the sale of such articles as soup stock and materials, peas, rice, barley, fresh vegetables and fresh and canned cove oysters.

(14) To the end that the country's industries and their workers may be maintained at the greatest efficiency, and that any unreasonable profits or speculation in food staples may be eliminated, we pledge ourselves to the United States Government not to sell any of the fundamental necessities (as announced by the President of the United States in his Licensing Proclamation of October 8, 1917) at a margin of profit over the delivered cost to the merchant that will yield to him more than a reasonable living profit, irrespective of the market conditions at time of resale; and we pledge ourselves to urge other grocers, whether under the licensing plan or not, to the end that margins of profit by retail grocers throughout the country over the cost to them shall not be greater than prevail under normal conditions. We urge that each retail grocer act individually, and that he sell the staple foods at no greater profit than is reasonable in accordance with their cost, and his individual cost of doing business, as sanctioned by the United States Food Administration.

(15) We earnestly urge the members and officers of every association of retail grocers as well as individual grocers in their respective communities to advocate these principles persistently in their local associations and to other retail grocers of the country in this grave national crisis when our country needs us most, that they may not fail vigorously to uphold the needs of the government and to do their utmost towards a speedy and triumphant conclusion of our war against Germany.

Likewise canners, packers, manufacturers, and similar groups dealing in any manner with foodstuff agreed to cooperate with the government.

Educational Institutions. The schools have been used to good advantage from the beginning of the conservation program. Courses of reading have been provided for elementary and secondary schools under the title: "Lessons in Community and National Life." The plan is to make these lessons bear directly on conservation but at the same time to embody in them broad principles of citizenship.

Conservation work of the higher educational institutions was

organized by President Van Hise of the University of Wisconsin, and includes lectures on "Conservation and Regulation," by President Van Hise, "Lessons on Food Conservation," by the Department of Agriculture and the Food Administration, "Decreased Food Production," by the Department of Agriculture and "Fuel Conservation," by Professor L. P. Breckenridge.

Women's Organizations. The work of these organizations is under the general direction of the National Council of Defense and immediately in charge of Dr. Anna Howard Shaw. These organizations, coordinated, have been able to reach the greater number of the women of the country in institutes and demonstration gatherings, and nearly all of them in solicitation to observe the food pledge card.

Libraries. The libraries of the country have been enlisted for help in food conservation. To them are sent lists of food conservation publications from which they may order literature suitable for their needs. They make displays of posters, and advertise articles and books on their bulletin boards.

Religious and Fraternal Organizations. Almost without exception, these organizations have responded to the request that they aid in the campaign. The different bodies have met separately and decided to go into the work systematically. Ministers very generally have explained the food situation to their congregations. The different churches have appointed representatives to join the staff of the Food Administration and so keep their demonstrations in touch with the general plans. The religious press maintains a bulletin service in Washington in order to keep in close touch with the available information. Probably half of the people of the country are reached directly through the churches and fraternal societies.

Hotels and Restaurants. The hotels, restaurants, dining car managements and other organizations serving food have very largely cooperated with the Food Administration in carrying its plans into effect. Meatless and wheatless days have been observed by these organizations and it is this aid which has contributed largely to their success.

Transportation Companies. The transportation companies very promptly undertook to meet the trying situation brought about by the war. A large part of their work at once became war work. Regular traffic had to give way to the emergency work of the government. It was obvious that the decisions respecting the priority of shipment of different classes of goods could not well be left to the judgment of the many railroads. Again, it was conspicuously true that the great number of roads were not working as a unit in accomplishing the great task of moving the freight and passengers of the country. Consequently on January 1, 1918, the federal government took over the railroad management entire. Later the express and telegraph businesses were taken in charge by the government. The bulk of the work pertains directly to State business and welfare, and for that reason it has seemed wise to handle it through the State. By this means those responsible for the government decide what shall be done.

Direct Appeal to the Consumer

The effectiveness of the whole conservation program depends ultimately on the effect produced on the great mass of individual consumers, especially upon the effect produced on the women, in whose hands the execution of the food conservation plans ultimately lies.¹

The direct appeal is being made by means of

1. Visual instruction
2. A speaking campaign
3. A personal canvass
4. Cooperation of the press.

Visual Instruction. The Department of Agriculture in its campaign for production has issued over 20,000,000 food leaflets.² The Food Administration has issued almost numberless leaflets and posters appealing to people to save food. In the moving picture theaters slides and films are in constant use ex-

¹ Food Administration, Bulletin No. 1.

² *Weekly News Letter*, July 17, 1918.

plaining the food situation and calling upon the people to live up to the requirements of the Food Administration.

Speaking Campaign. Representatives of the Food Administration and the Department of Agriculture have gone about over the country addressing all manner of audiences, some called together for the specific purpose, and many meeting primarily for other purposes. Several deans of agricultural colleges have been so employed, likewise teachers of home economics, and others miscellaneously chosen for the service. A large number of local speakers, called "four minute men," have been drafted for publicity service and appeal. The "four minute men" are a number of men in every city and town of the country who appear at theaters, moving picture performances, fairs, and other gatherings of people in considerable numbers, and in about four minutes, give talks on the issues of the war. It is the purpose to present in this manner topics on which the general public should be thinking and acting. A wide range of subjects is tabulated, and in many instances model four minute speeches are prepared by the Food Administration and the Department of Agriculture, which the speakers adapt to the need of their respective communities.

Personal Canvass. After all there is nothing that takes the place of the personal appeal. This was not neglected. It was put into operation through the women's clubs, churches, schools, and other organizations. By this means, a very large proportion of the housewives of the country were visited and enlisted in the specific work of saving spoonfuls, and cupfuls, and ounces and pounds of food. It is by this detailed method that such savings as have been made were accomplished, and are being accomplished. Each housekeeper was asked to sign a pledge card and display it showing that she was complying with the requests of the Food Administration.

Cooperation of the Press. The press has been literally filled with matter concerning the work of food conservation and production. While no doubt a large number of individual publications could be found which have not lent their aid, the response

has been so general that the "slackers" of this kind are not conspicuous.

CONTROL

It was recognized in the Food Administration Act that some means more effective than voluntary cooperation were likely to be needed in handling the food situation. Provision was made for control of an authoritative character over many phases of the case. Control is a supplement to voluntary saving to be used as the latter is found inadequate. With a view of control the President is specifically empowered to requisition food, fuel, etc., to license "the importation, manufacture, storage, mining, or distribution of any necessities." He may even purchase and resell wheat, flour, meal, beans and potatoes. Thus the President is given a vast amount of authority over the food supplies of the country. In several important instances, this authority is being exercised.

The leading lines of effort pertaining at all directly to agriculture which have thus far been undertaken within the field of control are:

1. The licensing of middlemen.
2. The fixing of prices and price ratios.
3. Aid in conciliation with respect to prices.
4. The limitation of profits.
5. Prohibition of certain industries and trade practices.

Under the second of these topics is discussed some price questions in which the Food Administration acted the part of a conciliator only, as in the case of milk price disputes. In other cases, as that of butter the setting of a price was virtually only limiting profits. Incidentally, certain trade practices were prohibited, for instance speculation.

Licensing

One of the most important means of controlling the businesses pertaining to agriculture is through the issue of a license to the men who handle the goods. When an announcement is made to

the effect that a given group of men or businesses are to be licensed, no one may, after a specified lapse of time, continue in the business affected without a license. The license itself puts an obligation upon the licensee whereby he must make reports as to his acts, and must agree under penalty in case of failure, to live up to the demands of the Food Administration.

It is very difficult to give in few words the classes of businesses subjected to license. In the main, it may be said that producers of agricultural products, and the great majority of the retailers of food commodities are not to be licensed. Retailers whose business amounts to \$100,000 a year may be licensed. All manufacturers of food commodities, cold storage, warehouse, elevators, mixing, packing, wholesaling, and distributing companies doing more than a certain amount of business, are required to take out licenses. These general rules have been modified to fit the problems as they have arisen. Thus, while retailers are not required to take out licenses covering their general businesses, they have been put under surveillance with respect to the sale of flour and sugar since the time when the control of these commodities could no longer be safely left to the consciences of the dealers and consumers. Their books are inspected from time to time in order to see how much of the commodities in question is being handled. Instructions are furnished them by the Food Administration. In this manner they are treated much as though they were operating under a license, but in a less formal way, and without the specified legal penalty for failure to conform to the rules.

A device which seems very effective in holding retailers within bounds is that of publishing at frequent intervals tables showing what retailers pay for goods, and what consumers should pay for the same.¹

Dealers in farm implements are under license. Farmers have made two complaints; first, that machinery and repairs for the same were not obtainable promptly or in sufficient quantities; second, that the prices charged were unreasonably high. A re-

¹ Food Administration, Bulletin No. 1005, January 7, 1918.

quest came from the farmers that an investigation be made.¹ The license makes it possible for the Food Administration to find out the real basis of the complaint and to limit profits.

Up to December 8, 1917, there had been issued 67,325 licenses covering elevators, mills, sugar dealers, general commodity dealers, and bakers; since that time both the scope and the number of licenses has expanded greatly.

The Fixing of Prices and Price Ratios

The Food Administration is given almost unlimited power with respect to the uses and the transportation of all manner of foods, and feeds for live stock. It is directly granted in the case of wheat, and has been extended, somewhat indirectly to sugar. The following quotation sets the matter of the price making power of the Food Administration in a clear light:²

There appears to be a good deal of misinformation circulated amongst the agricultural community as to the policy and scope of the Food Administration with relation to price fixing. I wish to say at once and emphatically, that the Food Administration is not a price fixing body except with regard to certain commodities which are today dominated by wholly abnormal overseas commercial relations and the surrounding factors with regard to which are such as to project great dangers both against the farming community and at the same time the consuming community. The two commodities under regulation are wheat and sugar. With the further exception of cases in which it has intervened purely as a friendly intermediary between organized producers and consumers—as in city milk—the executive department of the government has no authority and no desire to fix prices of products of agriculture.

It seems necessary and desirable to restate the reasons already referred to by the President which render it necessary and possible to undertake control of the marketing of these two commodities. The economic forces arising out of the war, which have necessitated this action, are in the main as follows:

1. All of the overseas shipping in the world has been placed in government control and the volume of this shipping is much reduced. As a consequence there is no longer any free play in commercial overseas traffic as the governments involved must designate what tonnage is to be assigned to each commodity and each class of traffic.

2. Inasmuch as normal commercial overseas traffic has broken down, it

¹ Report of the Advisory Committee of Agricultural and Live Stock Producers; see also *Weekly News Letter*, July 24, 1918.

² Food Administration Bulletin No. 700, February 25, 1918.

was necessary for the Allied Governments in Europe to set up single agencies for the purchase of the whole of their food supplies from abroad. Of American wheat their purchases are of sufficient volume to control the price—and this is the only agricultural commodity where this maintains.

3. In the face of a necessary duty to reduce our consumption of food—so badly needed by the Allies—it has been absolutely necessary to arrive at a division of these two commodities in the common interest of the war, and to control the reduced supplies internally, in order that all may be treated alike—rich and poor—and this implies a control of distribution and price.

As stated, practically the only commodities as to which these new economic forces dangerously involve the United States are wheat and sugar. All control measures are the less of evils. In wheat we were faced with a single agency whose proportionate purchases to the total were such as to dominate the prices. Any relationship with this agency by our officials in limiting their operations thus becomes absolutely price fixing, and it becomes at once a question as to whether it should be done openly and frankly with our producing community, or done secretly, at the will of government officials. Furthermore, in the ordinary course of our wheat marketing, the wheat goes to the markets during the first four months of the harvest year and during this period, were no control established with the Allies and neutrals, it would be entirely possible for them to export from the United States such a portion of our wheat supplies as to leave our population short of bread. It has therefore been necessary in the interests of the American consumer, that the government should intervene to protect his supplies. Again, in the face of this abnormal situation, the normal wheat marketing machinery of the country was completely paralyzed. To have attempted the normal course of marketing through the boards of trade and exchanges, by which the buyers of wheat protect their operations by sales of futures, involved a dangerous series of speculations, nor did the exchanges themselves wish to be the centers around which such speculations should take place. Every action of the Allied buyer, every rumor of peace and thereby the liberation of the large wheat supplies in Australia, every monthly shipment of wheat abroad in the depletion of national supplies, would have been the center of speculation and the cause of violent fluctuations in the exchanges, of the same character that occurred during the last five months of the 1916 harvest year, when, although the farmer had marketed his wheat at an average of \$1.44 a bushel, the price, due to these very causes, at one time rose to over \$3.00 a bushel, and flour to over \$17.00 a barrel.

The Control of Wheat in 1917

As wheat is the most important cereal viewed from the standpoint of human food, the first steps taken in the direction of food control were with respect to the distribution and price of that commodity.

The Grain Corporation. Some forms of food control had been in operation in Europe for more than a year before the Food Administration began the control of wheat in the United States. The German experience with maximum prices could not be pointed to as entirely successful. England had not been able by a mere announcement to hold prices at a particular level. With this European experience at hand, the Food Administration wasted no time with a maximum price, but proceeded to institute complete control over the machinery of marketing and at the same time to enter into the markets and become a buyer of wheat as well. Under Section 11 of the Food Administration Act, the President is authorized "to purchase, store, and sell . . . wheat, flour, meal, beans, and potatoes." In order to facilitate the purchase, storage, and sale of wheat, the President ordered the creation of a corporation to be known as the Food Administration Grain Corporation with a capitalization of \$50,000,000,¹ all of the stock of which was to be owned by the United States. This corporation with headquarters at New York has buying agencies at fourteen important terminal markets throughout the United States.² Wheat is bought at the terminals from the regular commission men, and is sold to millers for domestic consumption, and for export.

The Price Committee. As soon as the Grain Corporation was formed to buy and sell wheat, the question of price came immediately to the front. With the Grain Corporation in virtual control of the demand for wheat, ready to buy the entire crop, if necessary, it became imperative that the price be fixed and that this fixed price be maintained throughout the year to prevent the withholding of wheat from the market in an attempt to force the prices up. Accordingly a Committee on Prices was appointed by the President to determine a fair price at which grain should be purchased by the government. This committee was selected

¹ By order of the President, June 21, 1918, the Food Administration was authorized to increase the stock by \$100,000,000 as need should arise. *Weekly News Letter*, July 3, 1918.

² See Bulletin issued by the United States Food Administration, December 1, 1917 — *Policies and Plan of Operation*.

from men representing both consumers and producers from different sections of the country as can be seen from the list.¹

The Price Fixed. After deliberating two weeks the committee recommended, August 30, to the President that the price at which the Grain Corporation should purchase wheat be placed at \$2.20 for No. 1 Northern Spring wheat or its equivalent at Chicago. The Grain Corporation declared the following grades equivalent to No. 1 Northern:

No. 1 Hard Winter
No. 1 Red Winter
No. 1 Durum
No. 1 Hard White.

These all took the basic price, \$2.20 at Chicago.

The Grain Corporation had determined the differentials to apply to the other grades and markets taking into account the difference in the quality of wheat and the relation of the various markets to Chicago. The following table shows the price of wheat at several important terminals for both the 1917 and 1918 crop:

¹ The Committee on Prices consisted of:

President, Harry A. Garfield, Williams College, Williamstown, Mass.

Charles J. Barrett, Union City, Ga., President Farmers' Union.

William N. Doak, Roanoke, Va., Vice President Brotherhood of Railway Trainmen.

Eugene E. Funk, Bloomington, Ill., President National Corn Association.

Edward F. Ladd, Fargo, N. D., President North Dakota Agricultural College.

R. Goodwin Rhett, Charleston, S. C., President Chamber of Commerce of the United States.

J. W. Shorthill, York, Neb., Secretary National Council of Farmers' Co-operative Association.

James W. Sullivan, Brooklyn, N. Y., American Federation of Labor.

L. J. Tabor, Barnesville, Ohio, Master Ohio State Grange.

Frank W. Taussig, Washington, D. C., Chairman Federal Tariff Commission.

Theodore N. Vail, New York City, President of the N. E. Telephone and Telegraph Company.

Henry J. Waters, Manhattan, Kans., President Kansas State Agricultural College.

1918		1917	
New York	\$2.395	New York	\$2.28
Philadelphia	2.39	Philadelphia	2.27
Baltimore	2.3875	Baltimore	2.27
Newport News	2.3875	Newport News	2.27
Duluth	2.225	Duluth	2.17
Minneapolis	2.215	Minneapolis	2.17
Chicago	2.26	Chicago	2.20
St. Louis	2.24	St. Louis	2.18
Kansas City	2.18	Kansas City	2.15
Omaha	2.18	Omaha	2.15
New Orleans	2.28	New Orleans	2.20
Galveston	2.28	Galveston	2.20
Seattle		Seattle	2.05
Portland		Portland	2.05
San Francisco }	2.20	San Francisco	2.10
Los Angeles }		Los Angeles	2.10

Exchanges Suspend. The next step toward complete control over wheat distribution and price was taken when the grain exchanges were requested to suspend, during the period of the war, all future trading in wheat. By Section 13 of the Food Control Act the President was vested with this power. This regulation became effective September 1, and the Grain Corporation began operations September 4 in the terminal markets. To prevent further speculation, withholding from the market, or hoarding, the right of storage of wheat or flour was limited to thirty days, and millers were prohibited from contracting for the sale of flour for more than thirty days in advance. These regulations coupled with the licensing of elevators, millers, and other dealers in wheat, gave the Food Administration Grain Corporation complete control of the distribution of this commodity as it came into the markets.

Price Maintained. By this absolute control over the supply of wheat as it came into the market the Grain Corporation has been able to maintain effectively the prices which were set at the beginning of the crop year. From the demand side the control is practically complete as the Grain Corporation has an agreement with the Allies whereby these countries will purchase all of the wheat delivered at our seaboard and placed at their disposal at the established price.¹ The Grain Corporation like-

¹ See Food Administration Bulletin, December 1, 1917, *Policies and Plan of Operation*.

wise has the power to purchase all of the wheat received at the markets if necessary to maintain the price.

Having established the basic price of this commodity, the Food Administration has followed it through the manufacturing and distributing trades with limitations as to the profits to be earned in distribution and has thereby brought this prime commodity to the door of the consumer at the least possible expense and at a margin between producer and consumer less than normal. The same situation confronts the American farmer and the American consumer in wheat for the next harvest year.¹

The maximum differential of the millers is fixed at \$1.10 per barrel of flour, this sum to cover the cost of manufacturing, marketing and profit. The price of the flour is to be found by starting with the "fair price" of wheat at the point of manufacture, subtracting the value of the feed produced in the process and adding the differential of \$1.10. This, however, is a maximum differential, not guaranteed. Competition may cut the price to a lower level.²

Feed Prices. The wheat control has been extended to feeds, and the maximum price of feeds has been in a sense fixed by basing the price of by-products of grain milled on the purchase price of the wheat. In January the Milling Division of the Food Administration issued an order to the millers limiting the charges to be made for mill feeds on the following basis: Bran was to be sold for not more than 38 per cent of the cost to the miller of a ton of wheat. Other mill feeds could be sold at stated figures above the price of bran.³ Outstanding contracts at the time of the issue of the order were not to be affected.

The maximum charges to be made by the different middlemen handling the feed between miller and the farmer were fixed by the Food Administration. Under favorable circumstances the aggregate of the middleman charges should be under the ruling from \$2.50 to \$4.50 per ton, which with the freight added meant that farmers of the middle west could buy bran, when any was

¹ U. S. Food Administration, Bulletin No. 700.

² *Plans and Policies of the Cereal Division*, U. S. Food Administration, July, 1918.

³ See *Feedingstuffs*, January and April, 1918; also *Official Bulletin*, May 20, 1918.

to be had, at a reduction of some five to ten dollars below commercial prices preceding the order. It must be admitted, however, that the practical effect of the order on feed actually used by the farmer was very small.

About the time of the issue of this order the milling requirements were such that the by-products were scarce at best, nearly the entire wheat going into the flour. This fact together with the outstanding orders to be filled meant that very little mill feed was available for farmers, at the reduced prices, until the want for it, so far as the season of 1917-18 was concerned, was nearly past. The wheat crop of 1918 was heavy enough so that with the early milling the price of bran fell temporarily below the maximum set by the Food Administration.

From the Farmer's Standpoint. The wheat control so far as the production of wheat, the pay received by the farmer for wheat, and the prices of flour to the consumer are concerned, has been as successful as could reasonably be expected. How the farmer has fared may be seen in chart V.¹ The curves show the weekly price of a barrel of flour at the mill in 1916 and 1917. The weekly price of $4\frac{1}{2}$ bushels of wheat, the equivalent of a barrel of flour delivered at Minneapolis is also shown. It will be noticed in 1917, the amount the farmer received for his wheat is very materially more than in 1916, averaging about 60 cents per bushel or 38 per cent more for these months than in 1916. The most significant feature of the chart, however, is seen in the narrowing of the spread between the price of $4\frac{1}{2}$ bushels of wheat and the price of a barrel of flour at the mill in 1917 after more complete control of the marketing of this commodity was obtained. Here we see that the margin between these two prices amounts to 50 cents in 1917 while in 1916 this margin averaged well above \$1.00 and almost reached \$2.00 for certain weeks. If the farm price of wheat is used, it is seen that on November 1, 1916, the farm price of $4\frac{1}{2}$ bushels of wheat in the spring wheat States of North and South Dakota and Minnesota was 66 per

¹ See Food Administration Bulletin, *Policies and Plan of Operation*, December 1, 1917. Most of the curves were taken from this bulletin.

cent of the price of a barrel of flour at the mill; on November 1, 1917, the farm price was 87 per cent of the price of a barrel of flour. The price shown for wheat delivered at Minneapolis is for the best milling wheat, No. 1 Northern, while the farm price is an average of wheat prices for the given States. It should also be pointed out that the quality of the 1916 crop was inferior to that of 1917 so that this fact may account for some of this divergence. While there has been some criticism among wheat farmers of the established price, primarily because they felt that the price would be much greater if left alone, nevertheless the farmer received during the months of heaviest marketing, September, October, November and December, 1917, approximately 40 per cent more for his wheat than in 1916, 118 per cent more than 1915 and 145 per cent more than the three-year average before the war.¹

While these prices which the farmer is now realizing for his wheat are materially greater than he has received in the former years, they are, nevertheless, considerably below the prices which he received during the months just preceding the introduction of the wheat control. As compared with the above percentages, he received 148 per cent more for his wheat in June, 1917, than he did for the same month in 1916, 156 per cent more in July and 114 per cent more in August. With these increases before him and with the government crop report showing a crop for 1917 but little larger than the short crop of 1916, the farmer believed that left to itself the price of the 1917 crop would approximate the high levels reached in the spring of 1917, shortly after the outbreak of war. Some dissatisfaction was recorded in the spring wheat district primarily because of two short crops in succession. The great increase in acreage planted to winter rye in North Dakota suggests that the farmers of that State believed rye to be more profitable at market prices than wheat at the fixed price. But as noticed in Chapter II, the occasion for sowing rye in place of wheat in the Dakotas was more probably the relatively

¹ Computed from the Monthly Crop Reports.

better prospect of a crop than the question of relative profitability from the price standpoint.

Wheat was slower in coming to the market during the fall of 1917 than in 1916. The following tables show the receipts of wheat at the leading spring and winter wheat markets:¹

RECEIPTS OF WHEAT AT FOUR PRINCIPAL SPRING WHEAT
MARKETS, AUGUST 1 TO DECEMBER 3

	1917 Crop Bushels	1916 Crop Bushels
Minneapolis	47,271,000	56,060,000
Duluth	12,410,000	18,130,000
Chicago	9,897,000	31,150,000
Milwaukee	2,398,000	4,858,000
Total	71,976,000	110,198,000

RECEIPTS OF WHEAT AT SEVEN PRINCIPAL WINTER WHEAT
MARKETS, AUGUST 1 TO DECEMBER 3

	1917 Crop Bushels	1916 Crop Bushels
Kansas City	17,558,000	55,222,000
St. Louis	12,357,000	20,280,000
Omaha	4,586,000	20,421,000
Toledo	3,834,000	2,410,000
Peoria	818,000	1,707,000
Indianapolis	2,416,000	1,895,000
Detroit	1,262,000	1,422,000
Total	42,831,000	103,357,000

The receipts at the markets in both these districts for the four fall months is just a little over half of what it was during the corresponding months of 1916. The crop of 1917 was larger by about 14,000,000 bushels than the crop of 1916, although the extremely short crop in the southwestern States, Kansas, Nebraska, Oklahoma and Texas was undoubtedly the primary cause in reducing the receipts in the winter wheat markets listed. The unusually small stocks of grain in farmers' hands in 1917 was probably a factor as was also the shortage of cars needed in transportation.

The fixed price for wheat may in itself have had an effect upon the marketing of the farmers' grain during the fall. It has been suggested that the farmer was busy with his fall work knowing that the price he would receive for his wheat would remain the

¹ *The Market Record*, Minneapolis, December 3, 1917.

same throughout the year, and that he devoted his time to fall plowing, preparing for a bigger acreage of grain the coming year. It is also believed that these slow grain receipts reflect some of the feeling which existed among farmers that the price fixed on wheat was too low. The quantity of wheat on farms, March 1,

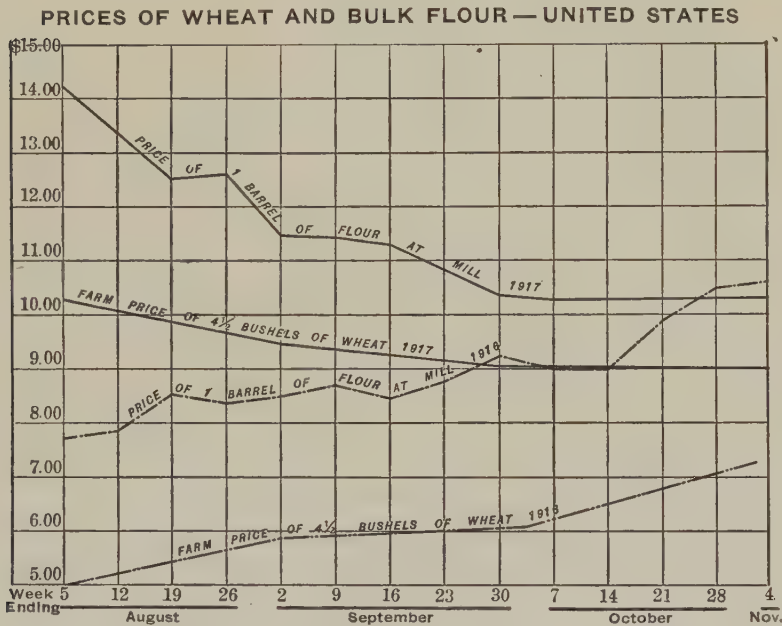


Chart V. Farm prices of wheat are nearer to flour prices since the regulations of the Food Administration went into effect.

1918, however, would not suggest that there was any considerable amount of hoarding done by farmers during the 1917 crop year. The wheat held by farmers, March 1, 1910-1918, was as follows:¹

	Millions of Bushels
1910	160
1911	163
1912	122
1913	156
1914	152
Ave. 1910-1914	150

¹ *Yearbook*, Department of Agriculture, 1916. Monthly Crop Report, March, 1917-1918.

	Millions of Bushels
1915	153
1916	244
1917	101
1918	111

The amount on farms for this year, 1918, it will be noticed, was slightly in excess of the amount in 1917, which was the smallest recorded for fifteen years.

At all events the wheat was marketed down to the smallest margin known in many years, 8,000,000 bushels left in farmers' hands, before the harvest of 1918.¹ The year before there were 156,000,000 bushels on farms, July 1, and in 1916, 74,700,000 bushels.

The Control of Wheat in 1918

Under Section 14 of the Food Control Act a price of not less than \$2.00 per bushel for No. 1 Northern Spring wheat or its equivalent was guaranteed the farmers at the principal interior primary markets for the 1918 crop. The President, however, was given the power to fix a reasonable guaranteed price above the minimum guaranteed in this section. With a view of stimulating the sowing of wheat in the spring of 1918, the President issued a proclamation, February 21, guaranteeing to the farmers for the 1918 crop the same prices which have been set for the 1917 crop — these prices to remain in effect until June 1, 1919.

During the early summer of 1918, Congress made a great effort to raise the price of wheat to \$2.40, in fact voting so to do, but the President vetoed the bill. The ostensible reason for passing the measure was the increase made in freight rates. The President, however, did not see his way clear to approve the bill since the increased price for wheat would have added \$2.00 a hundred to the cost of flour. July 1, he announced a new schedule of wheat prices, sufficiently above those of the previous year to cover the additional freight charges. The new prices are shown above, page 120.

¹ *Plans and Policies of the Cereal Division*, U. S. Food Administration, July, 1918.

The Relation of Wheat Prices to Other Prices. When the price of wheat was set at \$2.20 in the fall of 1917, the pertinent question, What effect will this action have on other grains? was asked. As the months passed and people were urged to eat flour other than wheat, the effect of the control of one grain and lack of control of others became apparent. The price of barley which had been 60 per cent of the wheat price in March, 1917, rose to 80 per cent of the wheat price in 1918.¹ When it is remembered that a bushel of barley is but four-fifths as heavy as a bushel of wheat, it is evident that the price of barley per hundred is equal to that of wheat.

The price of rye is reported at \$2.01 per bushel, or substantially the same as the farm price of wheat. In some instances it has sold for ten to twenty cents above the wheat price. With these facts before one it is easy to understand why the substitute flours are dearer than wheat flour, and therefore patriotism has to overcome a financial obstacle in the saving of wheat. It would seem that the more valuable and more desirable flour should sell at the highest figure as compared to the others, and thus use the financial inducement along with the patriotic in accomplishing the desired results.

Consumption Controlled. The Food Administration estimates that the amount of wheat used in the form of flour by the American people from the 1917 crop was 413,000,000 bushels, or at the rate of 3.93 bushels per capita. This is in contrast with a normal consumption of 5.3 bushels, a cutting down of over 25 per cent. In other words, America has contributed 110,000,000 bushels of wheat toward the feeding of the European Allies out of a saving from our tables.²

During the early part of the year the saving was put entirely on a volunteer basis. Later, on the discovery that the saving had apparently been very small up to the latter part of January,³ the

¹ Monthly Crop Report, March, 1918. As a matter of fact barley has sold in Chicago at \$1.95 per bushel, or at 82 per cent of the price of wheat.

² *Plans and Policies of the Cereal Division*, U. S. Food Administration, July, 1918.

³ Reported in address by Dean E. Davenport in Madison, May 1, 1918; see also an article in the *America Food Journal*, January, 1918, in which Dr. Carl

trade was required to sell substitutes along with wheat flour. Bakers, put under license, were required to use from 20 to 75 per cent of wheat flour substitutes in baking. "Wheatless" days were announced by the President. First one a week, Mondays, and later two days a week, Mondays and Wednesdays.

Nevertheless, the real saving on wheat flour came with the regulation requiring millers to use a larger portion of the wheat in the manufacture of flour and prescribing the sale of wheat flour substitutes on the "fifty-fifty" basis, *i. e.*, as much substitute flour or meal as wheat flour.¹ Along with this rule was an earnest appeal to consumers to refrain so far as possible from eating wheat in any form, and a warning to the dealers in substitutes not to raise their prices unduly.²

Wheat Saved. It must be admitted that, while we saved a great deal of wheat from the normal course of consumption, that most of it was saved after it was no longer obtainable. The Food Administration bought wheat for export after it was perfectly certain that it meant the use of substitutes for the home people. In fact by January 1, we had exported 60,000,000 bushels, and there was no remaining surplus, even counting on 30,000,000 to 60,000,000 bushels, of importations. Actually we imported about 30,000,000 bushels and exported 133,000,000 bushels.

Plans for 1919. Plans are already in progress for a still larger wheat crop in 1919. The Department of Agriculture is asking for a minimum of 7 per cent and a maximum of 12 per cent increase in the acreage of wheat sown in the fall of 1918 as compared with the acreage sown in 1917.³ A corresponding increase is also asked for in the acreage of rye.

Miner estimates that the consumption of wheat up to the end of 1917 had been above normal.

¹ Food Administration, Bulletin No. 12.

² *America Food Journal*, February, 1918.

³ *Weekly News Letter*, August 14, 1918.

The Control of Meat

To begin with there has been no attempt to control meat in the same manner as that put into effect in controlling wheat. There are no fixed prices for meat or live stock. It was evident at the beginning of the work of the Food Administration that meat was one of the main foods to be furnished to the Allies in quantities probably larger than the regular course of trade would supply. The buying for the Allies, the Red Cross, the Belgian Relief, the neutral countries, and the government, is concentrated in a single agency with headquarters in Chicago. By this means all opportunity for speculation between the packer and exporter is eliminated.

*Pork.*¹ The policies of the Meat Division of the Food Administration have been with respect to pork:

1. To stabilize prices at the central markets.
2. To maintain hog prices so that the minimum average price will not fall below \$15.50 per hundred (for 1917-18).
3. To maintain a price, for hogs farrowed in the spring of 1918, per hundred weight equal to thirteen times the price of a bushel of corn during the growth of the hogs.
4. As a result of the above price levels to stimulate hog production.²

Stabilizing Prices. The need for some stabilizing influence was apparent. The hog producers were dissatisfied whenever they received less for hogs than the price of the feed used in producing them and the question was whether the grain prices were not likely to continue so high as to make hogs relatively unprofitable. The first effort was in the direction of a more stable market, and early in November Mr. Cotton of the Meat Division announced that the government would use its influence to keep the average price of live hogs in Chicago at \$15.50 per hundred as a minimum until hogs fed on the 1917 corn crop

¹ The control, so far as there has been any in respect to meat, relates almost entirely to pork and beef.

² The Agricultural Situation in 1918. Office of the Secretary, Circular 84. U. S. Food Administration, Meat Division, Corn and Hay Ratios.

were sold. It was made plain to the producers that this was not like the wheat price, a guaranteed minimum backed up with cash with which to buy. It was a promise on the part of the government that it would do its best to keep the price up to that point.

As to the stability of prices, it is evident from a study of the published figures that since November, 1917, the fluctuations have been much less than prior to that time. For the first five months of 1918 the fluctuations from week to week were but half as great as for the corresponding months of 1917.¹

The average price of \$15.50 per hundred has been almost constantly maintained. It fell to \$15.03 in February, and rose to \$15.76 in April.¹ It is the opinion of Dr. E. Dana Durand, purchasing agent for the government and Allies, that the influence of the government is effective in keeping prices from falling, but under the circumstances, *i. e.*, the necessity of making heavy purchases, it can not keep them down to any given point. During the summer of 1918 the average price has been still higher.

The Hog-Corn Ratio. The apprehension of the government was greater concerning the supply of hogs for the year 1918-19 than for the hogs for the year 1917-18. The Department of Agriculture asked for an increase of 15 per cent in the number of hogs and in addition that they be fed to a heavier weight.² In order to bring this to pass it seemed necessary to give the farmers some assurance that they would not be called upon to feed the hogs at a loss. A conference of hog feeding experts consisting of Prof. John Evvard of Iowa, L. P. Funk of Illinois, N. H. Gentry of Missouri, W. A. Williams of Oklahoma, J. H. Skinner of Indiana, Tait Butler of Tennessee, and E. W. Burdie of Nebraska, was called together in Chicago to consider the question and make recommendations. The recommendations made were, with some modifications, adopted.

¹ From a manuscript report by O. F. Carpenter at the University of Wisconsin, Department of Agricultural Economics.

² *The Agricultural Situation for 1918.* Office of the Secretary, Circular 84.

The commission found that about the equivalent of twelve bushels of corn is required to produce a hundred pounds of hog. That for ten years ending in 1916, the price of hogs per hundred had been equal to 11.67 bushels of corn. Since, however, an increase in the number of hogs was desired the commission recommended that a ratio of 14.3 be adopted. The Food Administration decided upon 13 as the ratio to be offered. Yet, again this was not an outright offer. It was a pledge to use the influence of the government to maintain the price at that level. Chicago prices of both corn and hogs were to rule. A scale was devised whereby it could be computed how much corn a given lot of hogs had eaten and during what months it had been fed to them. From this information the price the hogs should bring could be determined.

It must not be suspected that the hogs actually eat 13 bushels of corn for each 100 pounds of gain. They may be, and usually are, fed on cheaper feed for at least part of the time. Moreover, a good feeder gets his gains at a smaller expenditure of feed and hence makes a profit. The 13-bushel ratio clearly contemplates tempting returns even to the feeder well below the most skilful.¹ It was the intention not alone to hold hog prices fairly high but to stabilize them.

The interesting question is, How is the 13-bushel-per-100-pound ratio going to work out during the year 1918-19? It must be remembered that feeding hogs is one of the main ways of disposing of the corn crop. Any important change in the hog demand for corn is bound to affect its price materially. It is admitted that the ratio is a stimulating one with reference to hog production. That is to say there is more money in \$13 hogs than in selling corn at \$1 a bushel. Then why should not the farmer bid higher for corn in order to get more pork ready for the market? But should he offer \$1.50 for the corn and bring the selling price to that point, then must hogs automatically go to \$19.50 a hundred. At those prices for both hogs and corn

¹ *The Agricultural Situation for 1918*. Office of the Secretary, Circular 84.

there is as before more money in the hogs than in corn sold directly, and so why should not the farmer offer \$2.00 for corn? In which case the government would of necessity undertake to keep the price of hogs at \$26. If there is any end to the hide-and-go-seek game thus set in motion it is not apparent. Manifestly the riddle of artificial price making has not yet been altogether solved.¹

Beef. Much less has been done with respect to maintaining either prices or supply of beef. In a speech made in the West, Mr. Hoover, in January, 1918, announced something in the nature of a beef policy.² He said:

We have, with the aid of England, adopted the course of increasing our export orders for frozen meats, so as to clear part of the freezers. I have advised the packers that it is our policy that the prices of cattle (except canners) will not fall substantially below the present levels—we all know that any attempt to fix standard or minimum cattle prices is almost an impossibility, and that during most periods, the demand takes care of the supply.

One of the main reasons why the government can exercise such a signal influence in stabilizing prices is that it can buy in such large quantities as, on most occasions, to prevent congestions.

An instance occurred in August, 1918, which pointedly illustrates the weakness of set rules and policies with respect to markets. The government, while discouraging the production of highly finished beeves,³ bought almost no carcasses of light weight beeves, for example, from cattle weighing 800 to 1,000 pounds. While conditions were normal this worked well enough, but very suddenly the pastures in parts of Oklahoma and Texas failed, and, almost without warning, light beeves began to come into the markets in great numbers. For a time they sold for 8 or 9 cents a pound, while heavy beeves were bringing from 15 to 18

¹ The thirteen-to-one ratio was abandoned in October, almost before it was really tried. For one thing there was a dispute over the interpretation of the agreement, and furthermore, there was much apprehension on the part of the Food Administration lest the price should be forced too high.

² *Deseret News*, January 10, 1918.

³ *Weekly News Letter*, July 10, 1918.

cents a pound. This meant a distinct loss, and an unnecessary one, to the cattle owners. At times they sold cows for hardly more than their hides were worth. The market was flooded with meat which was bought from the farmer at a low price, but while meatless days still continued, the consumer was asked to pay the usual high prices.¹ The Food Administration after receiving many urgent telegrams suspended temporarily the meatless day order so far as beef was concerned, and also undertook to purchase some of the lighter weight beef carcasses. Adjustments in a market governed by rule are difficult whenever the rule fails to fit the circumstances.

Conclusion. Confronted by a difficult situation, the government has thus far made no very serious mistakes. The supply of meat has increased at a time when there seemed great danger that it would decrease. The prices are high, but they are no higher than the general level of other commodities. We have succeeded in exporting astonishing quantities of meat to the Allies and have accomplished it without any considerable amount of increase in prices due to speculation. The number of middlemen handling meat is held at a minimum and if any unfairness is practised by the packers it is not due to war conditions, but is simply a continuation of an old régime which can, however, be discovered and corrected more easily now than in normal times. With respect to profits of the packers it is reported by the Federal Trade Commission that the big packers have made profits 350 per cent greater than before the war.² This of course means an added increase in the price at which meat must be sold.

The Control of Butter, Cheese and Eggs

The plan of control of these commodities was based on the information furnished by the Bureau of Markets with respect to the quantities in storage.

¹ Houston *Post*, August 16, 1918.

² Summary of the Report of the Federal Trade Commission on the Meat-Packing Industry, July, 1918.

Butter. The way in which the work of controlling the prices of these articles is handled is illustrated by the following bulletin: ¹

Wholesale prices for storage creamery butter have been announced by the United States Food Administration, for New York and Chicago, the New York prices to govern other points in seaboard territory. The new scale has been established with the voluntary cooperation of the butter trade, and all exchanges notified to observe the following wholesale quotations:

"New York: 47 cents a pound 'for the remainder of the season.' This means about two months, when most of the present storage creamery butter will have been released. This price will remain unchanged, without allowances for accumulating storage charges.

"Chicago: 45½ cents a pound until February 1. Beginning then the price will be advanced one-fourth of a cent on the first and fifteenth of each month until practically all creamery butter is released from storage. This increase is designed to compensate for storage expenses.

"The new scale of prices is based on a careful investigation of the cost of storage butter and allows a reasonable profit for the holders. The usual trade differentials are to be allowed the various classes of handlers.

"Stable prices at these two principal butter centers, under voluntary agreements with principal butter exchanges, is regarded as sufficient assurance that corresponding prices will rule throughout the country."

While storage butter was sold to the retail trade at 47 cents a pound, it would be sold to the consumer at something over 50 cents, probably about 55 cents a pound. Fresh butter during January and February was sold in New York City for 57 cents, and in other cities at the same time ranged from 48½ to 60 cents a pound.² Thus, while butter was high, it did not go to unprecedented figures, and a good grade of butter coming from the storage houses was on sale at reasonable prices throughout the winter.

The opportunity for profiteering in butter is well-nigh eliminated by the rules governing resale among dealers. One or two resales within a given city were all that were allowed, and these at prescribed rates of increase in price.³

Another force helping greatly to control the price of butter is

¹ Food Administration, Bulletin No. 592, January 19, 1918.

² *American Food Journal*, January and February.

³ *Official Bulletin*, July 24, 1918.

the use of substitutes. For example there was an increase in nut margarine sales from 600,000 pounds in January, 1917, to 9,600,000 pounds in January, 1918.¹

Cheese. The control of cheese was undertaken later than that of butter and eggs, but corresponds to these in almost every particular. No limitation is placed on the price to be received by the farmer, but the margins of all dealers between the cheese factory and the retail merchant are carefully prescribed. The dealers are licensed and are required to report upon margins received over purchase price. The advances taken must never be more than enough to allow a reasonable profit.

It is the intention of the Food Administration that cheese be kept moving in as direct a line as possible. The different cheese dealers are put into three classes: first the manufacturers; second, the assemblers, wholesalers, and jobbers, including all who receive cheese from manufacturers and grade and assemble it for sale, or who distribute it in any way except at retail; third, retailers, hotels, restaurants, and institutions.²

All cheese made during the season of 1917 was ordered to be marketed before the beginning of the cheese making season of 1918.³

Eggs. With meat selling at higher figures than ever before, it was evident that the price of eggs would correspond. Especially was this to be expected in view of the short supply of eggs in the fall of 1917.

In January the Food Administration announced prices for storage eggs in New York City, Chicago, and other points, of 40 to 42 cents. As in the case of butter, resales among dealers were strictly limited and the margin to be made in such resales was also limited. These limitations applied also to poultry in storage.⁴ Fresh eggs were unregulated, and always greatly in

¹ Hoard's *Dairyman*, April 26, 1918.

² U. S. Food Administration Press Bulletin in *Chicago Dairy Produce*, August 20, 1918.

³ *Butter, Cheese and Egg Journal*, February 13, 1918.

⁴ *New York Times*, January 15, 1918; *New York Produce Review*, May 15, 1918.

demand over storage eggs. They sold in January in eastern cities for 48½ to 60 cents a dozen, and in February as high as 85 cents.¹

The Control of Milk

It must be admitted to begin with, that the title "Milk Control" is not altogether appropriate. The same degree of public authority entering into the control of meat and sugar has not thus far been applied to milk. Nevertheless, the prices for some months have been artificially made more nearly than they would have been in the outcome of ordinary competition.

For about a year previous to our entering the war there had been trouble with respect to the prices paid by city distributors to milk producers. Not that there had never been trouble before. There had, but never so acute, and never with so wide a difference of opinion regarding a fair price. It should be understood that the farmers had for some time been able to act more or less in concert through their Milk Producers' Associations. The Chicago district had been organized for some years, as had likewise the milk producing districts around nearly all the large cities. By this means the farmers were able to carry on something approaching collective bargaining. In the spring of 1916, on April 1, the milk producers in the Chicago district demanded a very modest increase in price. The distributors refused to meet the demand and a "strike"² ensued. After a week, during which very little milk from the regular milk zone made its way into Chicago, the distributors gave the producers what they asked, raising the price from \$1.33 to \$1.55 per hundred pounds for milk containing 3.5 per cent of fat. As a result the price to the consumer was raised from eight cents to nine cents a quart, though not for several months after the increase was granted the farmer.

Six months later, that is in September, 1916, the producers made another demand for increased pay, asking for \$2.00 a hundred pounds for milk. This demand was accepted by the distributors. Just before April 1, 1917, the producers made a de-

¹ *American Food Journal*, January and February.

² Really a boycott, but substantially always called a strike.

mand for \$2.12 a hundred pounds as the average for the next six-month period (it had been the custom to set prices for six months) and again the distributors acceded.

There was no further disturbance in the milk market until the end of the summer period, 1917, *i. e.*, October 1, at which time the producers set a price of \$3.42 a hundred. Under great protest the distributors accepted the situation and raised the retail price to 13 cents a quart. The price of \$3.42 a hundred was for the one month, October. The Food Administration had made an earnest appeal to the farmers to fix the price for one month only, promising that an effort would be made to regulate the price of dairy feeds. To this proposal the farmers gave ready assent.

In the meantime, there was great dissatisfaction on the part of the consumers. The press denounced the farmers, and the future looked ominous. The Attorney General of the State of Wisconsin at once began legal proceedings and soon had the leaders of the Producers' Association under indictment. The contention of the Attorney General was that the farmers in meeting to discuss and fix milk prices had violated the anti-trust law of the State. The inference is that each farmer in order to keep within the law should bargain individually for the sale of his own milk, even a group discussion of the price being taken as *prima facie* evidence that the law had been violated. The milk producers insist that they can not sell milk at a fair price without concerted action, and that so long as they fix a fair price only they should have a legal right to act as a body. Perhaps they should have such a right, but the disposition of the State and district attorneys is to prove that at present they are law breakers.¹

In an effort to bring order out of chaos several State governors appointed milk commissioners to study the case. Prominent among these were the Wisconsin commission, and the Governors' Tri-State Commission for Pennsylvania, Maryland and Delaware. Later in the year, several federal commissions were appointed by the Food Administration. In fact milk commissions became quite the order of the day. There were federal commis-

¹ Six milk producers indicted one day. *Chicago Tribune*, October 17, 1917.

sions in Boston, New York, Chicago, San Francisco, and virtually the same sort in many other centers. The situation in the vicinity of Chicago and Milwaukee became acute soon after the announcement of the \$3.42 price in October. The Governor of Wisconsin appointed a commission during that month to inquire into the cost of producing milk and to suggest a price. The commission gathered together all available information and in conference with representatives of the milk producers and the distributors of both Milwaukee and Chicago fixed a tentative price of \$3.22 for the months of November and December. Under this agreement the distributors were to come down from 13 cents to 12 cents a quart as the selling price. At the same time the United States Food Administration was prevailed upon to appoint a commission which should go more fundamentally into the matter and determine a price based on the cost of producing milk plus a reasonable profit. The commission was to determine the price for the six months period following January 1, 1918, and to make it such that any losses which might have resulted from the November and December price should be made good. The commission appointed consisted of eight men and one woman: John S. Miller, John W. O'Leary, John J. Fitzpatrick, Lucius Teter, and P. G. Holden, all of Chicago, John H. Harris of Wisconsin, W. J. Kittle of Crystal Lake, Ill., Dean Eugene Davenport of the University of Illinois and Mrs. E. P. Welles of Hinsdale, Illinois.

During the sittings of the commission testimony was taken from a large number of dairymen and country agricultural agents, agricultural college experts, milk distributors, the city health officer, and a few social betterment workers representing the consumers. It was expected that the commission would complete its hearings and be ready to announce a price by January first. As a matter of fact, the hearings were prolonged until the last days of January and the price announced February first.

The testimony of the dairymen conflicted, or perhaps a better word would be, varied. According to the figures given the cost of producing milk ranged from a little over \$3.00 a hundred to

more than \$5.00 a hundred, based on actual accounts. The college experts undertook to base costs on a formula which could be used from time to time, allowing for changes in the price of labor and feed. The formula which received the most attention was one constructed at the Illinois Agricultural College. It had been substantially accepted by the Wisconsin commission and was again given great prominence in the discussion by the Chicago commission. This formula was known as the "Pearson Formula," it having been devised by Mr. Pearson of the Illinois Agricultural College. It was based on a series of farm accounts involving 873 cows. The formula undertakes to show what is required in the form of feed and labor to produce a hundred pounds of milk, and is as follows:

188 pounds of silage
44 pounds of grain
50 pounds of hay
39 pounds of roughage
2.42 hours of labor

It was assumed that other debits and credits would balance. The cost was based on the maintenance of an entire herd such as would be needed to keep a given number of cows milking. By the use of this formula it was found that the price of milk in order to cover cost would have to be very materially raised. In fact, all testimony presented by any one interested in agriculture pointed to the same thing. The testimony of the farmers, it is true, varied. The Illinois formula was a definite statement, but it in turn had been made on the basis of average amounts of feed and labor required in producing milk from nearly nine hundred cows during a certain year. Either method, that is, the direct testimony or the formula, involved the question of an average. The commission was awake to the fact that an average cost price failed to solve the difficulties; that ordinary market prices do not bear any known definite relation to the average of the separate costs. Not being satisfied with either the reports of costs or the formula since both were bound to suggest price increases, the

commission tried a different method. They made a statistical study whereby they tabulated the costs of feed and labor entering into the cost of milk production from November to June during the period 1908 to 1915 exclusive. Arriving at these costs, allocated according to the Pearson formula, they found that they would, under present conditions, be about 77 per cent greater, an increase comparing favorably with the general increase in prices from that earlier period to the corresponding months of 1917-18. It was assumed that the farmer must have received a reasonable profit in 1908-1915, so the prices received during those years was increased by 77 per cent and adopted as the 1917-18 price scale. Although three members dissented, the commission announced a price lower for February by 15 cents a hundred than the price of the preceding three months, and falling from that to \$1.80 for June; thus the June price was set at a point but 12.5 per cent above that of June, 1917.

Not only was a decrease in the price thus justified in the minds of the commission but another line of reasoning led to the same result. Some one discovered that in all cost accounting work in connection with farm prices, the market values of the intermediary products were used. According to the testimony of many expert accountants, this is contrary to the practice in accounting methods as applied to industrial or commercial concerns. Here, then, it was said, were the farmers trying to make double profits by putting a price on feeds far above their cost, because they would sell for a high price, and yet asking a price for milk which would yield a profit above these inflated costs. In consequence an accountant was called in to demonstrate the fallacy and to prove that the proper way to proceed was to ascertain the cost of grain, hay, and the like, to the farmer, and charge to the dairy account these much lowered items. For example oats were selling at 80 cents a bushel during the hearing. They had cost much less, say 45 cents a bushel, and should go into the dairy accounts, therefore, at 45 cents and not at 80 cents.

What, forsooth, does this have to do with the effect of the war on agriculture? It has this to do with it: Formerly milk was

sold on the basis of a price in which competition played the major rôle. Now on account of the unprecedented demand for the cereals out of which milk is largely produced; on account of the high price of labor involved; and on account of the great demand for milk at condenseries, we are, due to these contributing causes, together with possibly a few more, trying to substitute "fair price" for the ordinary competitive price.

To return to the Chicago milk commission. The commission could prove by the cost accounting method most suitable for arriving at a low figure that the price of milk instead of rising should fall. Moreover, the comparison of present returns with the supposed profitable returns of 1908-1915 substantiated the conviction that the farmer should be contented with a cut in the November-January price, \$3.22 a hundred, for the ensuing months. This was by no means all of the reasoning of the commission. According to the testimony of one of them it had virtually been decided that the retail price in Chicago should be maintained at 12 cents a quart.¹ Using the price arrived at for the farmer left the distributor as wide a margin on which to do business as he had asked for. The scale of prices announced by the commission for the five months following February 1 amounted to an average price of \$2.45 cents a hundred pounds to the farmer. This equals 5.28 cents a quart for the distributor. In other words, out of the consumer's dollar the farmer was to get $44\frac{1}{3}$ cents, the distributor, including transportation charges $55\frac{2}{3}$ cents.

Immediately after the announcement of the new scale of prices, the farmers instituted a boycott and not much milk made its way into Chicago for several days. The State Food Administration undertook a reconciliation. A man was sent from the United States Food Administration to hear the arguments, and with the prospect of an official settlement in view, the farmers again shipped their milk. Thus the month of February passed. About March first, the commission announced that the price for March would be \$3.10 in place of \$2.83, and that prices for the

¹ Information received by the writer at first hand.

ensuing months to July 1 would be announced about two weeks in advance of the first of each month, it being the plan to base them on the changes in feed prices.

Meanwhile what of the consumption of milk? It is a hard matter to sell a given quantity of any commodity irrespective of the price asked for it. No sooner had the price of milk been increased in October, 1917, than stories began to be circulated to the effect that the consumers would not buy the ordinary amounts of milk at the advanced prices. It has been estimated that even after some recovery under the 12-cent price from the falling off in purchases on the announcement of the 13-cent price, the consumption is still much below normal.¹ At the time of the hearing, it was estimated that the decrease was 20 to 30 per cent.

While the milk price battle has been going on, the condenseries have been using a great deal of milk. The apparently limitless demand for condensed milk for export, the high price which it has been bringing, and the enterprise shown by the condensery companies in expanding their business has been a leading factor in creating a demand for milk and holding the price high.²

The Boston and New York commissions reported earlier than the Chicago commission. For New York, the price to the producer was fixed at \$3.35 per hundred for three per cent milk. At the same time the price to the consumer was set at 15 cents per quart for grade B milk, the kind most in use. This was for milk with three per cent of fat. For each tenth of one per cent more fat, an additional four cents is paid. Thus milk testing 3.5 per cent brought \$3.72 a hundred, or fifty cents above the price paid in Chicago.

Milk investigations have been numerous. The commission appointed by the governors of Pennsylvania, Maryland and Delaware made an elaborate report on the cost of producing and dis-

¹ Hoard's *Dairyman*, April 24, 1918.

² However, at the time the commission made its decision there was much condensed milk in storage on account of lack of transportation facilities, and the smaller demand by condenseries contributed to the surplus which was then a factor.

tributing milk.¹ The Boston Chamber of Commerce issued a bulletin, December 31, 1917. Studies have been made also in other districts, for instance, in Cleveland, and Pittsburgh. In all of the inquiries made it has been found that the costs of producing milk have risen faster than the selling price.

The increase in the price of milk during the year 1916 undoubtedly had a stimulating influence on the production. This condition continued until well into the year 1917 when the prices of grain so outran the prices of milk as to make milk appear very cheap. It is not easy to change the quantity of milk produced abruptly without serious loss. Hence, the threatened decrease in the supply of milk following October 1, 1917, failed, for the most part, to materialize. Whatever may have happened in the way of a decrease was no greater than enough to balance the lessening of the demand due to the increased prices charged the consumer. At the same time the stocks of condensed milk had a tendency to accumulate on account of the congested condition of the railroads and the shortage of shipping for the foreign trade. Were it not for the danger of a congested condition of the traffic, condenseries could take milk at almost any price, so long as the foreign trade would absorb it, in view of the arrangement with the Food Administration whereby the condenseries are allowed to buy milk as best they can, manufacture it, and take a ten per cent profit. As a result of these forces the price of butter weakened earlier in the season than usual. Cheese declined in price, and milk for a time became relatively abundant. By July 1, 1918, there was no longer a surplus.²

The war has stimulated the dairy industry and has undoubtedly given the dairyman more for his product during some months than he would otherwise have received. Nevertheless, it has failed to furnish a steady market, and has signally failed to yield as great a reward as is obtainable by the more direct market for grain. It has raised the price of meat to an unprecedented figure

¹ Governors' Tri-State Commission, Report of Pennsylvania. Department of Agriculture, Bulletin No. 287 issued in 1917.

² From oral report of officers of the Chicago Milk Producers' Assn. at a meeting in Madison, Wis., in July, 1918.

and so made the meat price of the dairy cow and the veal calf greater than ever before. The discouraging features of dairying have prevented any pronounced rise in the price of cows as dairy cows and the result is that the meat price and the dairy price are closer to each other than normally. This tempts many dairymen to sell their cows for beef, a temptation which most of them have resisted.

The information concerning the sacrifice of dairy herds is meager. In the census taken by the State of New York in April, 1917, it was found that there were more cows, by 3 per cent, than the year before. There were plenty of heifers a year old or over to keep up the numbers for a time. Of heifer calves, however, there was a decrease of 26 per cent reported. In the vicinity of Chicago there has been a great deal of talk about disposing of dairy herds. A letter from Swift and Company at Chicago, dated March 13, 1918, states that the number of cows slaughtered by them in the five months preceding March 1, 1918, was in relation to the whole number of cattle slaughtered 53 per cent, in contrast to 58 per cent the year before. For the corresponding months the slaughter of calves was a little less during the latter period than the year before.

The total number of calves received at five leading markets during the calendar years 1913 to 1917 were:

1913	741,000
1914	664,000
1915	726,000
1916	919,000
1917	1,180,000

Thus there has been an increase in the receipt of calves by 77.7 per cent from the low figure of 1914 to that of 1917. From 1916 to 1917 there was an increase of 28.4 per cent in the receipt of calves at the five markets. Not all of these calves were slaughtered, though most of them were. From October, 1917, to February, 1918, Swift and Company report that 89 per cent of calves received were slaughtered. This can mean nothing other than a more general turning of calves into veal. The Bureau of Crop Estimates, however, in a statement issued February 1,

1918, reports for the country an increase of 22.7 per cent during 1917 of heifers kept for milk. This would show a strong tendency toward an increase in milk production.

Within many of the distinctively dairy States slight decreases in the number of cows are reported for January, 1918, as compared with January, 1917. In a group of eight eastern States, from Maryland to Massachusetts, decreases ranging from one to five per cent are shown. All other States show increases with the exception of Ohio and Texas.

In individual instances many cows have been sold at lower prices on account of the difficulties over milk prices and the resulting dissatisfaction on the part of the farmers. However, the Department of Agriculture reports important increases in prices for substantially every State in the Union. The average increase in value per head reported for the year 1917 to 1918 is \$10.96 or 18.4 per cent. This is in contrast with an increase of but \$4.96 in the value of all "other cattle," and \$7.06 for "other cattle" two years old and over. The reaction on the price of cows due to milk price dissatisfaction had apparently not materialized up to January 1, 1918. However, it must be remembered that the discontent does not apply to the whole dairy district, but only to the portions contributing to the city milk trade. As a consequence the figures for the whole country, or even for a single State, fail to reflect accurately the situation in these important sections.

It must be recognized that farmers are going to move slowly in disposing of their dairy equipment. The cost of rebuilding a herd, the loss in fertility following the policy of selling grain, the inertia of farmer conservatism, all act as deterrents.

The Control of Sugar

The people of the United States are great sugar eaters, being outclassed in that regard by three of the more distinctly English countries, the United Kingdom, Canada and Australia, and by the Danes. The per capita consumption of sugar in this country is a little over 80 pounds a year, varying from 79 to 87

pounds during the years 1909-1916, whereas but one-fourth of that amount is produced in continental United States. Another quarter comes from our insular possessions, while half of the supply comes from other countries, principally Cuba.¹

There would be no shortage of sugar in this country, and no occasion for a sugar control, were it not for the situation of the Allies. Our own immediate sources are ample were we to take the entire supply. The sugar trade of Europe has, however, undergone a very great transformation since the war began. For example, France had normally exported 100,000 tons of sugar and since the war has needed, but has not had, 500,000 tons from the outside markets.²

Belgium had exported sugar, largely to England. Italy had imported sugar, but only in small quantities. The important point in the European sugar trade was that the United Kingdom, using a total of 2,000,000 tons annually, imported half of her supply from Germany and one-fifth of it from Austria. The balance came from France, Belgium, Russia, Holland, Java, and in small amounts from other countries. Since 1914, these regular sources of supply have been almost entirely closed, with the result that the vast amount of sugar needed in the United Kingdom and France has practically to come from the American and Cuban fields. The Java sugar is too far away, as are the smaller quantities in other scattered countries. The additional demands put upon the cane sugar producing countries is hardly short of 2,000,000 tons, or about one-sixth of the maximum product.³ The beet sugar producing areas of the world are very largely east of the fighting line in France.

Not only have the Allied countries appeared as buyers in the markets in which the United States has been the leading customer in former years, but they have come to America and asked for a share in the limited supply. Whereas we exported but incidental amounts of sugar before the war, we are exporting from 600,000

¹ *The Agricultural Situation for 1918*. Part III. Sugar, Department of Agriculture, Office of the Secretary, Circular 86.

² *Ibid.*

³ *The World's Sugar Supply*, National Bank of Commerce, N. Y.

to 800,000 tons a year. This is sugar which has been imported in a raw state.

It was evident that an agreement would be necessary between this country and the European Allies or there was danger of working at cross purposes. The Food Administration promptly called the leading refiners of both cane and beet sugar into conference and secured from them agreements to place all sugar in the hands of the Food Administration to be sold at wholesale at \$7.25 a hundred.¹ A National Sugar Committee was organized and a little later an International Sugar Committee.² The refiners agreed to perform their services for 1.3 a pound, approximately the prewar margin.³

These measures assured a supply at wholesale at a moderate figure. The next question was how to get it to the people without a big increase. Already the retail price was mounting. The Food Administration asked the President to put all sugar dealers, so far as the law permitted, under license. On September 18, the President announced that it should be done, and gave those holding sugar a short time to dispose of what they had on hand before the license, and presumably a lower price, should be put into effect.⁴

In October, 1917, the curtailment of the use of sugar was begun. It was then believed that not very much reduction in the consumption for the year would be required. At first the Food Administration asked that consumers use sugar sparingly, suggesting that 67 pounds a year would be a reasonable amount, a reduction of about 18 per cent below normal. Attention was called to the sugar controls of France and England where one and two pounds, respectively, a month per capita was the rule.

The allowance per capita was soon cut far below the suggested 67 pounds a year. Just prior to July 1, 1918, the Food Administration announced that there was less sugar than had been anticipated for use during the next six months. It would mean a

¹ This price has since been increased, but not greatly.

² *Official Bulletin*, September 18, 1917, and Food Administration Bulletin, Nos. 180 and 182.

³ Food Administration, Bulletin No. 251.

⁴ *Ibid.*, No. 235.

greater reduction than had been contemplated. The limit of 3 pounds per person per month was set, with an additional 25 pounds per family for canning. Commercial canners, candy makers, hotels and bakers were required to get certificates from the local food administrators indicating the quantities they might buy.

While the great majority of the retailers are not under license the Food Administration has control over the sugar and if the retailers do not live up to the rules the supply of sugar may be cut off. Thus the plan of distribution is virtually complete from refiner to consumer.¹

The retailers are allowed to charge a reasonable margin over wholesale prices. Sugar is, in August, 1918, and has been for some months, selling for 9 to 10 cents a pound.²

Subsequent to the regulations published to take effect July 1, 1918, the allowance per capita has been cut from 3 pounds to 2 pounds per month,³ and the allowance for canning cut to 10 pounds or less, with corresponding reductions for the groups of sugar users such as confectioners and hotel keepers.

Since sugar is one of the products which can be had only at certain central points, the refineries, it is relatively easy to bring it under the Food Administration's authority. All of the wholesale dealers, being under license, are required to deal through the Food Administrators of their States, and the State Food Administrators are in turn answerable to the National Committee of the federal Food Administration. From reports secured from local dealers the State Food Administrators find how much sugar has been used in the past few months. From this the allowance for the time is determined.

The sugar control seems to be a very genuine success. In the first place, the supply is made to go round and to last. In the second place it is being sold at a relatively small price, even though higher than formerly, instead of at some unknown high price

¹ Food Administration, Bulletin No. 323; *Sugar*, July, 1918.

² *American Food Journal*, January to August issues.

³ Food Administration, Bulletin No. 1098, July 26, 1918.

which in all reason would obtain were it left to free speculation and probable monopoly.

Other Instances of Control

Wool. Probably the most important undertaking in the way of controlling the sale and price of a commodity other than those discussed above, is seen in the handling of the wool clip of 1918. Prices had become so high, without seeming to have reached the upper limit, that the government took the case in hand and adopted the prices of July 30, 1917, as the prices for the year 1918.¹ It is believed that these prices are high enough to encourage the sheep industry.

Twine. The price of binder twine had risen by the spring of 1918 to an extremely high figure. Before the war sisal unmanufactured, cost the importers about 7 cents a pound. In 1917, it reached 19½ cents. The manufactured twine was selling for 24 to 27 cents, when the Food Administration set a limit at the factory of 23 cents for standard twine. Since this action the prices have been stable and somewhat lower.²

Agricultural Implements. The control over agricultural implements has not been directly in relation to price. It has been found that unnecessary expense has been put into many of them at the factory, particularly in the making of a great many needless varieties of them. The Food Administration has eliminated 2,000 different models as not required.³ Among those to be discontinued, for example, is the left hand plow.

¹ *Official Bulletin*, May 2, 1918.

² *Weekly News Letter*, May 22, 1918.

³ *Official Bulletin*, May 3, 1918.

CHAPTER VI

The Results of the Food Administration

STATEMENT OF ITS OWN VIEWS

On January 23, 1918, the Food Administration sent out a statement of its own views as to results attained. The document follows:¹

The accomplishments of the United States Food Administration since its inception some time after the beginning of the war last April have been slightly different from the popular conception of what they should have been, though on the whole they have been pretty much what the national and international American interest dictated they should be.

Summed up, the accomplishments have been these:

The Food Administration has handled the available American food sources and supplies with the supreme ultimate object of helping to win the war for America and the Allies by getting that food as abundantly produced, as carefully conserved, and as economically and equitably manufactured and distributed to strategic food points in the American and Allied world as possible. Its great task has been, is and will continue to be so to administer America's food resources that American and Allied morale will not be lowered through lack of food. All other considerations have been, are, and will continue to be predicated on this single object. It is the United States Food Administration's principal excuse for existence.

To effect this, the Food Administration has had to do the best it could with the legal and other equipment with which it was invested and which it possessed. To the provisions of the Food Act the Administration has added moral suasion and the powerful weapon of voluntary agreement based on personal interviews and discussions between its representatives and representatives of the businesses and communities affected, concerning specific food commodities and conditions.

With these utensils in hand, and the world food problem reduced to clear facts and figures which showed it what specific things it must do to accomplish its supreme object, the Food Administration instituted an extensive campaign to acquaint the American public with the situation and to point out to it what its share in solution of the problem must be.

Primarily, however, the great task begun with this equipment was to eliminate waste, hoarding, profiteering and speculation in the manufacture and

¹ Food Administration, Bulletin No. 95.

distribution of all basic food commodities. To do this, voluntary agreements to this end were made wherever possible through more than 300 conferences with representative food men of all basic branches. In addition, the Food Administration assumed, by Presidential proclamation, absolute control through a system of licensing of all importing, exporting, storage, manufacturing, distributing and sales organizations; including retailers doing more than \$100,000 worth of business annually, of the twenty basic food products of the country. Countrywide reports show that the elimination in this way of waste, hoarding, speculation and excess profit has stabilized certain prices between producer and small retailer and, on some commodities, between producer and consumer. Incidentally in some instances this price stabilization has reduced prices to the American consumer. In the case of sugar, stabilization was effected between producer and consumer by fixing the price of sugar at the point of production.

In this and other branches of its work the Food Administration has built up volunteer, unsalaried organizations of men and women peculiarly equipped by their business or professional experience, to put its plans and policies into effect. Its aim has ever been maximum accomplishment at minimum expense.

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In its direct relations with the general public the Food Administration has aimed, through voluntary effort on the part of the public, to eliminate household waste and hoarding of food and to bring about saving and substitution in the use of the war foods Allied Europe urgently needs — wheat, meat, fats, sugar and dairy products.

To this end it has enlisted as members of the U. S. Food Administration between ten and twelve million American women. These home-makers are pledged to do their share in home conservation. How much they have done can not be estimated because specific statistics are not yet available, but the added amounts of war foods available for shipment to Europe proved that they, and the patriotic hotel, restaurant, dining car and boat people, also voluntarily enlisted in this conservation campaign, have done much.

The invaluable cooperative work of the American press in fixing the food conservation idea firmly in the individual American mind has been supplemented by a carefully planned campaign of public speaking, pictures, pamphlets and personal appeals to bring the vital war problem of food home to every citizen.

Above all, the Food Administration has tried, and believes it has in large measure succeeded, with the aid of the United States Department of Agriculture and other government and individual agencies, in stimulating production of needed war foods through appeals and encouragement to farmers to produce food and by pointing out specifically to them what, why and how much certain things were needed.

It believes it has succeeded in administering those food supplies already in existence so that they were sold wholesale at fair manufacturing and distribution prices, while at the same time employing them to relieve as much as possible Allied Europe's acute and threatening shortage of wheat, meats,

fats, sugar and dairy products, by shipments of those things from this country.

It believes that this vital and necessary service has distinctly helped to sustain the morale of the Allied nations. It believes that what it has accomplished along this line is preeminently the greatest of its performances.

Price summaries show that the policy of eliminating speculation, hoarding, profiteering and waste in the production and distribution of American foods has greatly aided in reducing domestic prices of basic products to reasonable levels right up to the door of the smaller retailer. It must, however, be remembered that primarily this policy was adopted to regulate production and distribution costs to better enable the Food Administration to discharge its international duty to the American and Allied world. It is true that some control has been exercised over the small retailer. But it must be remembered that this has been incidental to the larger service of supplying food to the entire American and Allied world.

Although it exercises by law no direct control, moral control has been exercised to an appreciable extent by warning them [the retailers] that if they charged profiteering prices they would get no more supplies from the wholesalers, who are by law directly under government control. This has had a salutary effect on all small retailers, and although retail prices generally have been above their legitimate levels it is safe to say that they have not by any means been so high and unreasonable as they would have been, had governmental control of production and distribution not existed.

The retail price of sugar is a case in point. It is typical of that group of commodities whose prices have been held to fair levels through the small retailer and direct to the consumer's door. Refiners have stated that had not the Food Administration controlled the price and distribution of sugar it would have gone, judging by previous war experiences, to 20, 25, 30, or even 35 cents a pound instead of staying, as it has, between 9 and 12 cents a pound retail. When you stop to consider that every penny's rise in the price of a pound of sugar means \$18,000,000 taken out of the consumer's pocket; and when you recall that what has been done was done in the face of an actual sugar shortage in the American and Allied war world, this performance was no mean accomplishment.

Then there is the matter of bread. The baking industry agrees that if the government had not taken control and eliminated speculation, waste, hoarding and profiteering from the milling and baking trades, thus reducing wholesale prices to reasonable levels and making that reduction influence retail prices, the retail price of a pound loaf of white bread would be not less than 15 cents throughout the United States today. It sells actually for from 7 to 9 cents everywhere in the land.

Before the war a dollar's worth of bread in the United States represented about 40 cents' worth of actual ingredients, labor and distribution cost. So that with every dollar's worth of bread purchased by a consumer before the war he was buying 60 cents' worth of waste, speculation and excess profits of which he did not derive the benefit. A 7, 8 or 9 cent loaf of bread in

the United States today, thanks to the United States Food Administration, represents exactly 7, 8 or 9 cents' worth of materials, labor and distribution cost.

Federal control, according to national statistics, succeeded in turning the corner in these *unreasonably* high prices about the middle of December, 1917. It has since succeeded in keeping wholesale prices of controlled commodities, and retail prices of the same among retailers doing more than \$100,000 worth of business annually, at fair and reasonable levels. This has also been effected in part among small retailers.

It should be borne in mind, however, that in war time reasonable prices do not necessarily mean low prices. The war time trend of prices, particularly in the face of the actual world shortages in the present war, is ever and inevitably upward. The only thing any human agency can do in the present situation is to keep the wholesale, and so far as possible the retail, prices separated from the cost of production and distribution only by the margin of a reasonable profit.

Finally, the United States Food Administration feels that the American public should constantly bear in mind the fact that this question of retail prices, though one of keen and vital interest to the individual, and one of those the government will deal with in due time, is not so vital as the broader problem of winning the war by squaring our food supply with our international interest.

CRITICISM AND COMMENT

The above document gives a picture of the Food Administration as seen by itself. Some of the assertions may seem to lack support, and some may even lack the appearance of scientific accuracy, as for instance the statement to the effect that the price of bread before the war contained 60 per cent of "waste, speculation and excess profits."

Mr. Hoover has made it plain to the American people on many occasions that he does not believe in food regulations except as a war measure. "It is the less of evils." "Its business is to soften the shocks of war." Mr. Hoover, not having much faith in government regulation except in the case of dire need, naturally does not look for perfection in its operation. He seems to think that in normal times the competitive price is necessarily the fair price.

Many will go farther than does Mr. Hoover in the faith that the government is able to guide competitive forces to the advantage of the country, yet few indeed had the courage to advo-

cate as a war measure so fundamental and elaborate a program as he has put into practice. One of the striking, almost incredible, facts about the year of history now past for the Food Administration is the lack of any drastic criticism in the press of the country. Nearly everything in print is in the nature either of explanations or commendations.

The task undertaken was Herculean. It was at once necessary to stimulate production and hold prices within reach of the consumer. The most baffling problem in almost every particular was that of transportation.¹ Speculation threatened to raise the prices of several of the most necessary articles of food to prohibitive levels so far as poor people were concerned. High prices would work out an automatic conservation without doubt, but it would mean starvation for the poor and luxury for the rich.¹ The stocks of flour, meat and dairy products were scarce enough so that bold speculators would surely have made the attempt to step in and monopolize the supply to the damage of home people and Allies.

Price fixing has its dangers and difficulties. Attempts have been made to determine prices on a basis of costs, which process is mainly unsound. Nevertheless, we have passed through a year of shortage of many of the common necessities. We have fed the Allies, and have escaped bread riots at home. We have induced the farmers to produce more than ever before. The Food Administration has not been responsible for all of these results, but it has played a prominent rôle in them, and while there is no way of telling what would have happened had the conditions been otherwise, it is safe to assume that without the Food Administration we would have had more profiteers, and less food to send across the Atlantic. We have sat at the table with the Allies and divided the loaf. Had we through a selfish or weak policy compelled the European Allies to get their food from the distant markets of the world, in other words, had competition set the price at which wheat, for example, should sell in the world's mar-

¹ Food Administration, Bulletin No. 15.

ket, and shipping had been left free to go where it would, the probability is that America would have eaten more wheat, at a higher price, and we would have had no soldiers in France. It required an administration with a world vision, and with no interest in profits, to devise a plan whereby the world could be fed, and the energy centralized on the one problem of winning the war.

Incidentally, we are learning many things about marketing and how it may be simplified. It will be the obvious duty of all concerned to devise means of keeping these shorter and less expensive ways open after the war. No doubt, this will mean a continuation of some measure of the regulation which is now in vogue.

CHAPTER VII

War Prices and the Intensity of Cultivation

It has many times been asserted that high prices will result in a more intensive cultivation of the soil. Intensive cultivation of the soil means a more complete or painstaking use of the soil in terms of the labor and capital applied to it. As a general principle it is safe to say that the scarce factor will be used the most fully as compared to the less difficult factors to obtain. That is to say, we will naturally use labor economically when it is scarce and dear. We will do only the most necessary work. An effort will be made to spread the labor over as much ground as it can cover. For example, one man will drive four horses instead of providing a man for each two-horse team. Many pieces of work will be left undone such as hand weeding, or gathering scattered bits of hay or grain, because it does not pay. This is another way of saying that the land will be less carefully worked than when labor is abundant.

At the present time labor is not theoretically, but actually scarce. Conversely, land is plentiful. True, products are high in price, but a farmer capable of thinking, will revolve in his mind the relative advantage of working a given number of acres with great care or a larger number of acres with something like ordinary care, and since he will pay the rent with fewer bushels, or tons, at the present time as compared with former years, is likely to decide that there is more pay in a large acreage than in added work on a given area. Likewise the share renter will feel that the high prices will warrant him in getting as many acres as possible at work for him. The share renter is never tempted toward extreme intensity of cultivation since for all exertions beyond those which clearly pay, the landlord will get as much as he himself, and such a division of reward is not tempting. Theo-

retically, rents do not change as rapidly as do the prices of produce. Rents are projected at least somewhat into the future and contain, therefore, a speculative element. A tenant is not tempted to offer a cash rental based on abnormally high prices since in the very nature of the case abnormal prices are likely to return to normal. If Illinois land rents for \$10.00 an acre, on the basis of 90-cent corn, it is by no means going to rent for \$20.00 an acre when corn sells at \$1.80 per bushel. Probably this means an added profit to the renter paying cash. To the share renter there may also be an added profit without any change in the proportion going to the landlord, but on the other hand, the expenses of the tenant, since he furnishes both labor and equipment, have risen more than have the expenses of the landlord. This does not prevent the landlord from trying to get a larger share of the crop, and this many will attempt just as surely as tenants prosper under present conditions.

The farm operator, whether tenant or owner, who can see his way clear to get the crop of ordinary size out of an added piece of land by doing the work in the customary routine manner, will be much more likely to find the opportunity of expanding by this means than by trying some new means of making the former area produce more per acre. It takes more imagination, more faith, and usually more capital to do anything of a signal nature in the way of intensive cultivation than in the way of extensive cultivation. The terms intensive and extensive are strictly relative. What would have been called intensive a half century ago is viewed as extensive now. Scientific progress is made slowly, and the farmer who reads and hears that eighty acres well tilled is more profitable than a quarter section not so well tilled is nearly always skeptical, and goes ahead with the quarter section. Half the time at least he is right. The more intensive cultivation pays, but it pays the man who is adapted to it and not the one who is not.

So in these times of rapidly rising prices of farm products, getting the work done is the difficulty. Labor is likely to be scarcer next year than this year, and so on, till the maximum of

military effort is reached. With fewer laborers on a given farm the intensity of cultivation will relax of necessity. On the farms where the full supply of labor happens to be unmolested there will be a strong incentive to expand the acreage if within reach there are more acres available. There will not be a desire on the part of a great number of farmers to go into the task of preparing raw land for cultivation unless the returns promise to come promptly. It costs too much to move stumps and stones in these days of \$3.00 a day men to make it seem profitable in most instances. But with grain and live stock at a record price it looks tempting to many farmers to get hold of an added tract of land on terms not greatly above prewar prices and grow an added quantity of grain or hay even though labor and machinery have also advanced in price.

There are numberless instances in which more land is not readily procurable. Will the extensive tendency here manifest itself? It will not. On the contrary where added acres are not available there will be a very strong tendency to turn the acres already in the farm to the highest use. There will be fewer acres left doing slack duty in pasture and meadow. More labor will be needed to make them produce cultivated crops, and it may not be forthcoming, but where by using more machinery or another horse or by making a greater effort in any feasible manner it can be done, the change is sure to be made. Thus we have the seeming paradox of both intensive and extensive tendencies. However, this is nothing strange. It is more than likely that both tendencies are always at work. On the farm which can be expanded in accordance with the principle above explained it is altogether probable that at some stage in the operations there will occur to the manager occasions for doing more intensive work than has been his habit. Hay, for example, is \$20.00 a ton and he has been fortunate enough to rent an adjoining meadow at \$7.00 an acre. He probably will put the hay up with the use of hay loading machinery rather than by the more approved hand methods, but he is likely to give the field a final raking, contrary to his custom,

because an extra ton of hay is now worth \$20.00 instead of \$10.00.

The total acreage of the country which is being farmed has expanded a little during the past few years. The amount of labor available for farms is somewhat less than usual, from which it follows that a general move toward more intensive culture is out of the question.

CHAPTER VIII

The Effect of the War on Agricultural Prosperity

A glance at the export table will reveal at once the great increase in the demand for the products of the farm. Never before was there such a sudden and pronounced expansion of the agricultural market. Reckoned in dollars the amount of exports of 1917 exceeded those of the year preceding the war by 164 per cent. In other words, where there was one dollar's worth of produce sold abroad in 1913, there were \$2.64 worth sold in 1917. This is merely a criterion. The bulk of the farmers' sales are not to Europeans but to the non-farming population of the United States. Assuming that in this market the same amounts of produce all told were sold from year to year the receipts would vary with the price. Of the five leading cereals the increases in price from March 1, 1914, to March 1, 1918, ranged from 70 per cent for oats to 225 per cent for rye.¹ Cotton rose 140 per cent; hay 50 per cent.

In the prices of animals and animal products, the increased prices were pronounced, but not so much so. Hogs rose almost 100 per cent; beef cattle 38.8 per cent; milch cows 34 per cent; sheep 130 per cent; wool 264 per cent. Horses, alone, show a slight decrease.

The total value of farm products for 1917 is estimated by the Department of Agriculture at \$19,444,000,000. This value is reached twenty-one years in advance of the time when at the rate of increase of the period 1889-1909 such a sum would have been obtained. The value of farm products in 1915 rose a billion dollars over the value of the preceding year. This was looked

¹ The Department of Agriculture reports an increase in the price of all cereals from July, 1916, to 1918, of 98.3 per cent. Of meat animals for the same time 70.3 per cent. Monthly Crop Report, July, 1918.

upon as phenomenal. But the 1916 product outdid this increase nearly three times over, while the 1917 production exceeded that of 1916 by six billion dollars. The estimate for the 1910-1914 average product was \$9,389,000,000. Thus the value of the 1917 product was more than double that of the prewar period.

It must not be supposed that the farmers received these sums as the income for the years designated. There are many duplications in the figures, particularly with respect to grain and live stock. However, the figures serve to show that the gross income of the farmers as a whole must have about doubled between 1914 and 1917. For those who sold cotton or grain the income more than doubled. For those who turned grain and hay into live stock, or live stock products, the gains, while great, were relatively less.

The net income is the true basis of comparison by which to show the change in prosperity. To find the net income it would be necessary to know the expenses of production. This is a task which would require better facilities than have yet been provided. However, there are some facts at hand which will throw much light on the subject. The weighted index for the prices of crops in 1918 is 111 per cent above that of 1915.¹ The increase in general living expenses has been enormous, but it is still below 100 per cent for the same period. The Department of Agriculture publishes a list of prices of 94 articles purchased by farmers. Of these articles, including almost everything from plug tobacco to flour, and from wheelbarrows to manure spreaders, there are but five that cost over twice as much in 1917 as in 1914, while 32 cost less than one and a half times as much. This shows that the bulk of the purchases cost somewhere from 150 to 200 per cent as much during 1917 as three years earlier.²

The quantity of goods purchasable with the products of one acre of crop is also of interest. In but seven instances out of the 94 would the product of an acre in 1917 buy less than in 1914. These exceptions are in part important, and in part very unim-

¹ *Weekly News Letter*, March 13, 1918.

² Monthly Crop Report, March, 1917.

portant. They are: lard, calico, muslin, carbolic acid, Paris green, hemp rope, and binder twine. In no instance does the greater part of a farmer's income go into any or all of these. The index number, based on 96 articles of general consumption, rose from 9.85 for August, 1914, to 18.07 for March, 1918. This shows an increase of 83.4 per cent, and is not greatly different from the advance in farm products taken as a whole.

Since 1914 the expenditure for labor has increased about 33½ per cent. The labor cost is greater than any other item of cost in producing farm animals and crops. It is therefore of great significance that the labor cost has lagged behind other costs. Taking all things into account it is safe to say that the producer of primary products, such as grain, or cotton, is getting much more for his efforts than ever before. In the matter of animal products the hog producers are clearly getting greater returns than ever before even though they fail to realize the highest quoted market price for their corn marketed in this indirect way. They have, however, marketed a vast amount of soft unsalable corn at a very good figure. The cattle prices do not suggest greatly increased incomes, but again by feeding cattle a great deal of grass and soft corn is disposed of at a figure much above anything that would be possible by direct sale. Sheep and wool have sold at prices greater relatively than the cost; cows and dairy products at prices not so greatly increased as the general increase in costs.

A factor of no small consequence in the field of net gain is that of the cost of land. The values of land, either sale price or renting price, have not kept pace with the general increases. Interest rates have changed but little. Thus a man who owns land encumbered by a mortgage, or who rents for cash, pays less in the form of labor, crop, or animal product for the use of the land than he formerly paid.

Everything considered it is safe to say that the farmers are making money faster than they ever did before. How much faster is not a matter easy to determine. In the case of those

who habitually pay out for living expenses about all of their income the situation has changed very little. They will still pay out most of the money taken in, since living expenses have advanced nearly as much as the prices of farm produce. However, for those who have had previously some margin with which to pay debts, or make investments, there is now an opportunity to pay debts or make investments at a rate much faster than before the war. In other words, the man who was able to pay a dollar of indebtedness, or invest a dollar, before the war can now use two dollars for such purposes. The man who just made a living before the war can just make a living now.

It may appear at first glance that the farm laborer is not getting his share of the increased income. An important consideration in this connection is that he gets the major part of his living along with his wages. Thus while he gets but four dollars where he formerly got three dollars, he can save the entire addition, or nearly so. Should land fail for several years to make advances in price corresponding to the increased value of the product it would seem that the farm laborer should be able to enter the tenant stage a little more promptly than during the past few years. But more certain is it that the tenant of to-day should be able sooner on account of the war to make the necessary initial payment on a piece of land and so rise from tenancy to land ownership. However, land is showing a tendency to rise somewhat in value even now and should the war continue several years more undoubtedly the feeling that high prices have come to stay will reflect itself in higher land prices.

This view that the farmer is prospering through war conditions is predicated on the assumption that the farm labor is available with which to get the work done, and that the scarcity of labor will be met in part by the introduction of labor saving machinery. Again the prosperity is dependent on the ability of the transportation agencies to keep the freight of the country in motion. This has not yet become an acute question so far as the main agricultural operations are concerned, but as in the case of potatoes,

the question of transportation may become the deciding matter between good profits or serious losses. Clearly the added profits are on a rather precarious foundation.

To suggest that these somewhat theoretical views concerning the prosperity of the farmers are not without foundation mention may be made of the part that the farmers of Wisconsin, who have paid almost no income taxes under the State income tax law, are paying about a million dollars in 1918 under the federal income tax law. An income tax collector reports that: "The high cost of butter, cheese and eggs has given many of them [the farmers] large incomes, part of which they owe the State."¹ He might better have enlarged the enumeration of the sources of income including tobacco, grain, and live stock, but it is plain that the farmer's income has been greatly increased even beyond his outgo.

¹ Milwaukee *Sentinel*, August 15, 1918.

PART II
THE UNITED KINGDOM

INTRODUCTION

For many decades the United Kingdom had been dependent on the outside world for a large proportion of its food. This dependence developed according to economic laws along with its national policies. The undreamed of magnitude of the world war made this dependence for food critical in the life of the nation. It is in the reaction to the food situation, which reached its climax in the spring of 1918, that we are chiefly interested.

First of all arises the question, How did Great Britain drift into such a critical situation? The statement of the problem is logically followed by a statement of the ways in which the situation was met. These ways, in addition to continuation of imports of food were, (1) by increase in domestic production, and (2) by control over consumption.

CHAPTER I

The Trend of England's Food Problem before the War

At the bottom of the whole problem is Great Britain's acknowledged supremacy of the seas for more than two hundred years, in respect to both its navy and its merchant marine. Its navy developed with its trade. Its trade was made possible by its merchant marine, which, traveling the high seas, carried enterprising Englishmen bearing the British flag to all parts of the globe. From these trading outposts the British Empire developed, and by reason of these connections the United Kingdom became the industrial center of the Empire and of the world. With the growth of industry stimulated by the profits of worldwide trade, agriculture declined in relative importance. Free trade came to be accepted as necessary to the welfare of the nation; it was the logical outcome of the doctrine of industrial liberty. English agriculture, though naturally at a disadvantage compared with the territories opened up to British trade, could not claim immunity from the general principle of free trade. The workers in industry wanted cheap food, and they got it through trade in exchange for manufactured goods. The inevitable result was that farming in the United Kingdom became relatively unprofitable and stopped growing.

Changes in English agriculture became distinctly noticeable when the large quantities of cheap grain from the newly developed American prairies were placed on the market in competition with home grown grain. After 1870, the imports of American grain were sufficient in quantity and so low in price that English farmers were obliged to produce at a loss or go out of business. The result was that the less desirable wheat lands were devoted to other uses, mostly being laid down to grass. In 1872 the acreage of plow land in Great Britain was at its maximum, 13,839,000

acres in extent. In 1914 the acreage of plow land was 10,306,000 acres, or twenty-six per cent less than in 1872, the difference being accounted for by a corresponding increase in the area under grass. The prices of animal products were relatively higher than those of grain, which induced the British farmer to seed his wheat land to grass to feed his live stock, and even to buy some of the feed in the form of mill by-products from America.

Attention is directed to wheat because wheat is the most important grain grown in the United Kingdom, and because of its importance in the food supply.

The per capita consumption of wheat in the United Kingdom is about 360 pounds, or about six bushels per year. (This is approximately the same as the per capita consumption of wheat in the United States.) The importations of wheat and flour into the United Kingdom have increased steadily from 1861 to 1916, as is shown by the following table of five year periods to 1910, the three years before the war, and the first three war years.

WHEAT IMPORTATIONS OF THE UNITED KINGDOM
AVERAGE ANNUAL IMPORTS PER CAPITA. FLOUR REDUCED TO ITS WHEAT
EQUIVALENT

Years	Pounds Ave. Annual	Years	Pounds Ave. Annual
1861-1865	135	1891-1895	281
1866-1870	138	1896-1900	266
1871-1875	178	1901-1905	296
1876-1880	213	1906-1910	289
1881-1885	244	1911-1913	294
1886-1890	236	1914-1916	238

The slight falling off in the last period is partly due to the extra large crop of 1915 and partly to difficulties of transportation incident to the war.

Coincident with the increase in the importations of wheat there was a decrease in production of wheat at home. The extent of this decrease is indicated by a decrease of fifty-four per cent in the area sowed to wheat in the United Kingdom in forty years. For the four years 1867 to 1870, the average annual acreage of wheat was 3,837,000 acres; in 1880 it had declined to 3,000,000 acres, while for the five years previous to 1911 the annual average

was only 1,700,000 acres. During this period the population had increased about thirty per cent.

The acreage previously, but not in recent years, devoted to wheat has been in large part laid down to grass, though industries have absorbed important tracts of land.

Other grains have suffered a decrease in acreage in the face of American competition. Barley, for example, occupied in 1881, 2,662,000 acres, but fell to less than 2,000,000 acres for some years before the war. The acreage of oats, on the other hand was rather steady for a long period; in 1881 it was 4,307,000 acres, in 1901, it was 4,112,000 acres, and for the five years previous to the war averaged 4,033,000 acres.

The potato acreage declined from 1,444,000 in 1881 to 1,223,000 in 1901, and further to 1,186,000 acres as a five year prewar average. There were changes in the vegetable crops, but these make only a small showing in the acreage of cultivated land in the United Kingdom.

As indicated above, much land which had been in grain was in grass in 1914. In 1867-1870 there had been 27,988,000 acres of grass land, including meadows in rotation as well as permanent pastures and mowings. This area had been increased by 1914 to 33,925,000 acres (five year average), an increase of nearly six million acres, or about twenty-one per cent.

In addition to the shifting from arable land to grass there was, until 1891, an increase in the total cultivated land, due to reclamation of marshes and heath, but subsequent to 1891 there has been a steady small annual decrease in the total crop area amounting to as much as a million and a half acres by 1914. A considerable part of the later decrease may be accounted for by absorption for industrial and other non-agricultural purposes.

British farmers met the competition of cheap grain by reducing their grain acreage to those fields which were most productive, and turning their attention to a more extensive type of farming, animal husbandry.

The censuses of live stock show that cattle made some slight gain in the forty years before the outbreak of the war. In 1881

there were 9,907,000 head of cattle of all classes in the United Kingdom, about the same as it had been for ten years previous. During the next decade there was an increase in numbers to 11,344,000 head, or fourteen and a half per cent. For twenty years the figure remained substantially the same, after which there was the slight increase of 707,000 head or six per cent in the thirteen years 1901 to 1914. There was some increase in the attention given dairying, but the proportion of cows and heifers to all cattle remained approximately the same. The increase in number of cows and heifers did not keep pace with the increase in population, which resulted in constantly increasing dependence on overseas trade for dairy products. The extent of this dependence may be measured by the increase in imports of butter and oleomargarine from 4.3 pounds per capita in the years 1866-1870 to 13 pounds in the five year period 1906-1910.

There was a similar increase in the imports of eggs, the rates being 14 per person in 1866-1870, but 49 in the later period.

The number of swine in 1881 was 3,157,000. In 1910 there were only 3,561,000 hogs, although the four million mark had been passed during the intervening time.

The number of sheep in 1881 totaled 27,894,000, and though there had been at times a few millions more, in 1914 the number was practically the same, 27,964,000.

The per capita imports of meat were a little less than six pounds in 1861-1865. They were eight times as much in 1906-1910, or forty-eight pounds per capita per year.

There were those who viewed this constantly increasing dependence of the United Kingdom on other lands for food with alarm, and they sounded a note of warning. Their warnings were unheeded because of the acknowledged supremacy of the British navy, supporting worldwide trade. It was the conscious policy of Great Britain to trust to the freedom of the seas and to the open markets of the world as a sufficient and readily available source of foodstuffs. This confidence seems not to have been misplaced, for under this policy England prospered. Even after the war began there was no serious disturbance of the food supply

and probably there would have been none in the event of any war which civilized people had thought even remotely possible. It was the titanic proportions of the world war which none but the Germans, who had planned it, had foreseen that were responsible for England's critical situation with respect to food in the spring of 1918. Not even the submarines, if used in accordance with the accepted rules of modern warfare, would have brought such a situation about as has been observed, for had the rights of neutrals on the high seas been respected by the German Admiralty, there would have been food aplenty laid down on the shores of Great Britain by the merchant ships of neutral nations.

England's policy of dependence on trade for more than half her food supply is in marked contrast to the policies of the continental nations, particularly of Germany, during the period under discussion. Germany sought to challenge the supremacy of Great Britain on the high seas, but was not secure in her position either in imagination or in fact. She could buy food in the markets of the world as cheaply as could England so long as she could buy at all; but the prospect of her being able to keep her ports open and her merchantmen at work in the event of war, particularly with Great Britain, was dim. In this Germany proved to be far sighted. Hence Germany began forty years ago to promote the home production of the necessary foodstuffs, and for twelve years before the war made it a part of a positive aggressive policy. Whether she was to fight an offensive or a defensive war she made every effort to ensure a successful war, and no part of her elaborate preparations for such a war was more carefully planned or more systematically prosecuted than that of economic independence of the outside world. The wisdom of this self-sufficing policy is remarkably demonstrated by the ability Germany has shown to feed her civilian population and supply her armies in the face of comparative isolation from the rest of the world. As above noted the wisdom of the free trade policy of England would have been as easily demonstrable in any ordinary war.

The following table showing the area devoted to the main food

crops per thousand of population indicates the relative positions of the nations noted with respect to domestic supplies of food.

ACRES PER 1000 OF POPULATION DEVOTED TO PRINCIPAL
CROPS

Country	Wheat & Rye	Oats & Barley	Maize	Potatoes
United Kingdom	43	129	..	26
France	468	300	26	97
Austria-Hungary	280	257	26	109
Germany	308	225	..	126

While in England the relative importance of agriculture was decreasing, Germany was developing more farms each year, breaking up forest areas, reclaiming marsh and sand dunes, fitting them into cultivated fields and placing farmers upon them. Under such circumstances the Central Powers have been able to subsist, though not without privation, while England is still dependent on her trade, in which only the greatest efforts of all the Allies have been able to save her from disaster.

Tables XVIII and XIX give additional statistics of crop area and crop production.

CHAPTER II

Domestic Production and Trade in Agricultural Products after the Outbreak of the War

The rise in price of food products incident to a state of war gave an immediate and effective stimulus to agricultural production. Besides the natural stimulus of expected high profits, the dependence of the United Kingdom upon importations of food became a matter of concern growing into alarm with the increasing inroads of the submarines into shipping. To such an extent was this true that the government felt that it was necessary to add to the economic appeal of war prices an appeal to the patriotism of the people backed by all its legislative and administrative powers.

DOMESTIC PRODUCTION

On account of the important place in the diet of the people held by bread, concern as to the wheat supply was uppermost in the minds of all. With wheat, oats, barley and potatoes are very closely associated, and to some extent interchangeable, as recent developments have indicated.

Wheat and Barley

The sharp increase in the price of wheat in the fall of 1914 and the following winter induced the sowing of a much larger acreage than usual. In fact, it is necessary to go back to 1891 to find an acreage greater than that of 1915. The increase was mainly at the expense of the barley area, the price of barley not having kept pace with wheat prices. For a five year period just before the war the average acreage of wheat was 1,896,000. In 1915 it rose to 2,335,000 acres, an increase of 23 per cent. The unprecedented world crop of 1915 allayed the apprehensions as to a

shortage and held the price down at the same time. In consequence the next year shows a partial shifting back to barley, which was gaining relatively in price as compared with wheat. The increase in the wheat acreage in 1915 was just about a counter balance to the decrease in barley acreage. The increase in production of wheat was approximately 12,000,000 bushels over 1914. In 1917 wheat showed a slight recovery over the decrease of 1916, but even so was but 11 per cent above the five year average. Barley was below the five year average, but to the extent of but 59,000 acres.

Oats

In the meantime the acreage of oats had been materially stimulated. The need of oats as a feed for horses in the war, the guaranteed price for them, and the patriotic appeal that they be grown in abundance was effective. The normal before the war was 4,033,000 acres. In 1917 an increase of 730,000 acres or 18.1 per cent, was reported. Taking the three leading grain crops together the combined extent for the years 1910-1914 averaged 7,785,000 acres. For 1917 it aggregated 8,664,000 acres, or 11.3 per cent more. This increase came mainly from the permanent grass acreage and especially from pasture.

Potatoes

Aside from the changes in the grain acreages the main development is in potato production. The importance of this crop was early recognized and a price guaranteed. The result was an increase of 178,000 acres over the five year prewar average.

Other Crops

Rather curiously, nearly all minor crops such as beans, peas, and the cabbages show decreased acreages. The shortage of the labor supply is the logical explanation. (See Tables XVIII and XIX.)

The increase in tilled crops in 1917 over 1916 amounted to 889,000 acres.

Live Stock

The live stock returns show some fluctuations both as respects numbers maintained and numbers passing through the markets, indicating an activity in animal husbandry comparing rather favorably with prewar years.¹ This may have been due to freedom from invasion which took large numbers of Belgian and French cattle, and to the lack of a compelling fear concerning food supplies on the part of Englishmen during the early part of the war. In Germany according to Dr. A. E. Taylor curtailment of importations of cattle feeds and shortage of cereals made serious inroads on numbers of live stock which in the winter of 1917 had been replaced, but with young stock and rather emaciated stock.²

The number of horses had been declining slowly but steadily before the war, and went still lower in 1915, but during the next two years not only recovered, but passed the normal by nearly eight per cent. The indications, however, in 1917, pointed to an almost certain decline soon to follow, since the numbers of colts under one year of age and the number of brood mares have decreased to a marked degree.

The numbers of cattle, both cows and other cattle, have done a little better than hold their own for the war period, although from 1916 to 1917 there are some reductions. The popular way of raising and caring for cattle in the United Kingdom is by grazing. The climate allows a long grazing season. The system makes a small demand on labor. The farmers are accustomed to the method. It has been in vain that agricultural writers have pointed out the economy of feeding live stock from arable instead of from grass land. Now, provided the labor can be obtained such a change, which has evidently begun, will prove a boom to the whole Allied cause. While the home grown meat is by no means adequate, it is at least gratifying that the milk supply has as yet not greatly declined.

As to sheep, the showing is not so favorable as for horses and

¹ See Tables XX and XXI.

² *Production and Conservation of Food Supplies*, Part 4, p. 425. Hearing before Senate Committee on Agriculture and Forestry, 65th Cong.

cattle, though the decrease is not very great. For the five years preceding the war, the number of sheep averaged 29,241,000. In 1917 the number reported was 27,771,000, a decrease of five per cent.

The pronounced decrease in the whole list of live stock occurs in the numbers of swine. Before the war there had been for a five year period an average of 3,812,000. The falling off was not great in 1915 or 1916, but the third year found the number down to 2,999,000, a decrease of 23.6 per cent.

The occasion for the more rapid decrease in swine than in other live stock is fairly easy of explanation. Probably if circumstances should force any people to reduce the amount of live stock to the very minimum the pig would be one of the last to go. On the other hand, when kept in large numbers, that is to say, beyond the numbers which can be supported as scavengers, the pig eats cereals and roots which are readily available for human food, and which, therefore, tend to become high in price. Other live stock eats coarser, bulkier foods, such as grass, hay and straw.

TRADE IN AGRICULTURAL PRODUCTS

Imports

As has already been pointed out the United Kingdom is dependent upon imports for half of her food supply. Any interference with trade then would materially affect the importation of food into these islands.

During the first months of the war there was a marked falling off in the importation of almost every kind of foodstuff. It is estimated that this deficiency amounted to 8 per cent in the first nine months of the war.¹ This might easily have been anticipated. During the opening months, trade with the enemy was shut off entirely and greatly restricted with some of the Allies. Some little time was consumed in finding other sources of supply for some of the food imports. Particularly is this so of sugar, which had formerly come from Germany and Austria, and wheat,

¹ *Journal of the Royal Statistical Society*, July, 1915, p. 501.

a part of which had come from Russia. When these other sources were found, importation was speeded up and brought to normal again.

The interference with trade by sea was less than had been anticipated. A great deal of uncertainty existed at the outbreak of the war, but this soon gave way when it was seen that the submarine was, for this time at least, unable seriously to restrict normal trade. Trade with neutrals was not interfered with appreciably — in fact it was materially increased, even at the beginning, particularly in foodstuffs.

Wheat. The imports of wheat diminished slightly in 1914 as compared with either 1912 or 1913 — the figure for 1913 being 122,000,000 hundredweight while that for 1914 was 118,000,000 hundredweight. This was quite largely due to the elimination of the Russian supply from the world market. Most of this deficiency was made up by increased importations from North America. The importations of wheat during 1915–1916 were considerably reduced. In 1915 wheat was a bumper crop all over the world and home production was correspondingly good from an increased acreage, largely compensating the decrease in imports. In the spring of 1917 English buyers were such insistent bidders for American wheat that prices rose to an unheard of figure. This was due to shortage of shipping which prevented drawing on the adequate supplies in India and Australia, and resulted in a pooling of efforts of the Allied Governments with respect to wheat. The shortage caused by lack of shipping became very serious in 1917–1918.

Barley. Barley imports likewise dropped off somewhat in 1914 (see table on imports of the United Kingdom below). The elimination of Russia from the market was also responsible for this. Russia is such a large factor in the barley market that the shutting off of this supply has caused the price on the English market to come up quite noticeably relative to wheat. The other grains all show a slight diminution in 1914, largely due to the stopping of trade with the enemy and with some of her allies. Barley in both production and imports was reduced in 1915–1916.

Less barley has been used in England during the war, the reduction in the amount of liquor manufactured being in part responsible for the decrease.

Oats. The national increase in production of oats during the war years was a practical offset to the reduction in imports of oats.

Rice. Importations of rice advanced sharply in 1915 to nearly double the prewar average; in 1914 importations were about the same as before the war and in 1916 about half as large again.

Sugar. The United Kingdom is not a producer of sugar and is obliged to import all of the sugar to supply the highest per capita consumption of any country. Previous to the war more than half this large amount came from Germany and Austria-Hungary which source of supply was of course entirely cut off at the beginning of the war. In spite of this fact, England was able to import somewhat more in 1914 than the five year prewar average. Due to exigencies of shipping and exchange, the importations of sugar suffered a decline of more than 20 per cent in 1916, and sugar cards were issued in October of that year.

Animal Products. The importation of meat products was but slightly affected by the outbreak of hostilities. The imports of both beef and mutton were normal while pig meat showed an increase from 6,450,000 hundredweight to 7,050,000 hundredweight, or 8 per cent. Butter importation fell slightly, while cheese, margarine and eggs were but little affected. Condensed milk fell off quite sharply in 1917.

The largest increases noted in animal products are in pork, wool, margarine and condensed milk — all of these products adapted to the use of armies. The importation of pork products shows a rapid increase from the beginning, until in 1916, it was over 3,000,000 hundredweight greater than in 1913, or about 50 per cent increase. Wool recovered after a drop in 1914 and in 1915 more than 800,000,000 pounds were imported. This represents a 60 per cent increase over the importation in 1913. Margarine rose from a million and a half hundredweight in 1913 to two and three quarters million hundredweight in 1916, an in-

crease of 80 per cent. Condensed milk (unsweetened) shows the largest percentage of increase of all products, jumping from about 50,000 hundredweight before the war to 277,000 hundredweight in 1915 and 668,000 in 1916, increases of 500 and 1,300 per cent respectively. Butter importation has declined, but this decline has been almost wholly made up by the increase in the importation of margarine. The war with the attending high prices may be directly responsible for this substitution of margarine for butter. The supply of butter was no doubt available, but margarine being somewhat cheaper and less perishable was substituted.

The importation of beef products mounted about 10 per cent in 1915 above the prewar level, but lost this and about 10 per cent more in 1916. Mutton has shown a decline due to the dropping off in the Argentine and Australia.

The imports of eggs have fallen precipitously since the war began. The cutting off of trade with Russia is quite largely responsible for this reduction as Russia formerly supplied more than 50 per cent of the imports.

Cotton. Cotton imports were down following the heavy importation of the preceding year or so, dropping from 28,000,000 hundredweight in 1912 and 22,000,000 hundredweight in 1913 to 19,000,000 hundredweight in 1914.

From the foregoing we see that the grain and cotton imports during 1914 were practically the only ones that were materially affected.

Cotton importation came back to normal again after the first shock of the war.

This analysis of the imports shows that the imports thus far have not been seriously interfered with in the most important products and grains. Exceptions to this statement are sugar, barley, mutton and eggs. Wheat and oats have been also affected somewhat, but the increased home supply has not rendered the position dangerous. The importation of pork has increased enough to take care of the decline in beef and mutton. Thus while the submarine has hampered trade, important supplies from

Russia have been shut off, and trade has ceased with enemy countries, the important food supplies show little diminution in amount up to the end of 1916.

For details of importations see Tables XXIII, XXIV, XXV, XXVI, XXVII and XXVIII.

Exports

The exports of agricultural products of the United Kingdom are of little importance except possibly in wool. The imports of wool, however, are given as net imports.

During the war exports of foodstuffs in general show a decrease. The most noticeable are those in wool, horses and the grains.

EFFORTS AND PLANS OF THE GOVERNMENT TO INCREASE PRODUCTION IN THE UNITED KINGDOM, PARTICULARLY OF THE BREAD GRAINS

In the fall of 1914 considerable agitation was noticeable in the press and on the part of public speakers about restoring to cultivation some of the land that had been laid down to grass during the previous thirty or forty years. The farmers were urged to do this as a national duty, to make England more secure in its position with respect to the food supply.

This was before the submarines became a serious menace to the islands by cutting off the outside sources of supply. Some enthusiasts proposed the immediate and indiscriminate plowing up of pasture land. Others who were more conversant with English farming proposed plowing up those pastures whose soil permitted it and which had recently been laid down to grass.

The question was fought out as to the advisability of converting this pasture land into arable from a national point of view. It was argued that to plow this land up meant that the stock-carrying capacity of the land would be curtailed and thus England would lose part of her supply of meat and dairy products which were also very important. Then, too, it was pointed out that wheat could only be grown every three years and it would require

that a great deal of land would have to be broken up in order that England could be brought to a self-sufficing basis so far as her bread grains were concerned.

Those who favored the policy of increasing the arable land, however, argued that more stock could be kept on an acre of arable land than upon an acre of pasture. At any rate, very little was done in the way of an organized campaign backed by the government in the first few months of the war.

Not all the advice given farmers during this period was bad. There were some men who had a sufficiently broad grasp of the situation to see that England was dependent upon foreign countries for other things than wheat. They saw that over 40 per cent of her meat supply came from without the United Kingdom, and that a considerable proportion of her dairy products likewise came to her from overseas. It was important that the supply of these necessities should be maintained as well as the supply of bread. To overturn the English system of farming in one year in order to try to produce a larger share of her wheat requirements was a rather dangerous experiment. H. Trustam Eve,¹ in an address before the London Farmers' Club, probably had this thought in mind when he said:

If a broad rule could express the duties of a farmer just now, as a citizen wishing to help the country, it could be expressed by saying, "Keep your land clean; keep it drained; till and manure it really well and sow what suits the farm and your style of farming—give the sowing of wheat the turn of the scale. By so doing the farmer will be adding to the wealth of the country and will grow as much per acre as the nature of the land permits."

1914

Crop production for 1914 was of course laid out before there was any idea of a war. But the war began early enough in the season to allow plans for the sowing of winter wheat for 1915 consumption to take shape. There were no organized efforts to increase production during the first year. Patriotic appeals in general and the spur of prospective high prices resulted in a

¹ Before London Farmers' Club, *Journal of the Farmers' Club*, November, 1914. (See *Farmer in War Time*.)

twenty per cent increase in the acreage sowed to winter wheat, even without an organized campaign. This was the largest acreage planted to wheat since 1891. This, however, was the result of shifting from the production of other crops, such as barley, beans, peas, and roots, to wheat. Fallow land and clover showed a decrease, too. The actual number of acres of arable land was not only not increased, but the United Kingdom showed a decrease of 65,000 acres, and the number of acres in permanent pasture showed but a slight diminution, a mere 20,000 acres in the United Kingdom. Thus, it will be seen that there was little, if any, actual increase in acreage of bread grains, merely a shifting from barley and cultivated crops to wheat.

1915

Economic motives somewhat influenced by patriotic appeals seem to have been relied on in the spring of 1915. The people came to realize that the war was likely to be of long duration and settled down to a steady pull.

During the fall of 1915, an active campaign was carried on by Lord Selborne, then Minister of Agriculture, for greater home food production. This may be looked upon as the beginning of a new era in the relationship of agriculture to the government. Heretofore, England had pursued a *laissez-faire* policy in regard to agriculture, watching complacently the diminution of her arable land, the decline of her rural population with the inevitable consequences. In the time of need with the country sorely pressed as the result of the interference with her trade, the government appealed to its farmers to come to its assistance and produce larger and larger crops and thus alleviate a dangerous situation which had arisen relative to the food supply. This was the first time that the Minister of Agriculture had undertaken such a program.¹ He appointed County Agricultural War Committees for the purpose of stimulating greater production. The government was behind this scheme, but declined to go further and guarantee a minimum price for wheat such as Lord Milner's

¹ London *Times*, October 5, 1915.

committee on increasing the production of food had recommended. The reasons given for this refusal were that the submarine danger seemed to have been mastered and that the acreage of wheat in the fall of 1914 had increased 20 per cent without artificial aid.¹

At any rate a beginning was made, and England reversed her policy toward agriculture. From then on a great deal of attention has been given to the stimulation of production and to agricultural questions in general looking toward their solution in order that production could be speeded up.

The results of this campaign are not easily discernible. The enormous worldwide crop of wheat in 1915 held the price of wheat down until the close of the seeding season, while the price of barley in the fall months was sufficient to cause a return to that crop. The production of oats, which had jumped up in 1915 as a result of the effort on the part of the farmers to supply oats for the government's army requirements in addition to the stimulus of higher relative prices than either wheat or barley, remained the same as 1915. In fact, the oat acreage throughout the United Kingdom did increase remarkably each year over the preceding.

1916

By 1916 the shortage of labor was beginning to be felt and there was considerable danger of production being curtailed as a result of it. It was estimated that 300,000 men had been withdrawn from agricultural production up to the summer of 1916.² It was during this season that there was considerable discussion concerning the use of tractors to alleviate the labor shortage. Not much use was made of them this year so far as can be learned from the press.

Some local trials of school boys had been made in 1915 as a means of augmenting the labor supply, and while these seem to have been fairly satisfactory where tried in that year, farmers

¹ *London Times*.

² *Ibid.* (Mr. Acland), on August 24, 1916. Also Department Committee on Land Settlement of Soldiers and Sailors estimated 320,000 had left the land from August, 1914, to June, 1916.

are reported as showing very little interest in school boy labor in 1916 in spite of the shortage of labor.

The Board of Agriculture made a campaign among the farmers through circulars and direct appeals to maintain production of food and in this was fairly successful.¹ The acreage of arable land showed an increase of over 150,000 acres in 1916, more than making up the set back in 1915 though it was still less than the five year average before the war. But it will be noticed that the acreage of root crops, including potatoes, peas and beans, declined each year as a result of sowing more grain.

The Board of Agriculture further helped the farmers by securing from the War Office 15,000 men to help with the spring work on farms and 30,000 men to help at harvest time.²

1917

Since the beginning of the war it had been suggested that the government should guarantee prices to the farmers, particularly for wheat, potatoes and oats. It was thought that this would expedite the process of converting pasture land into arable. During 1916 these suggestions began to bear fruit and there was a great deal of discussion as to the method to be used.

Other methods suggested to bring about greater cultivation of England's land were a tariff and a bonus for acres brought under the plow. With the advent of the Lloyd George Ministry, the appointment of Mr. Prothero as president of the Board of Agriculture, and the establishment of the Ministry of Food, some definite guarantees were made to the farmers relative to the 1917 production.

First, a guaranteed price was placed upon oat production in the autumn of 1916. The Board of Agriculture offered to contract for the purchase of oats grown *on land* now in *permanent pasture* at 41s. 3d. per quarter. This was approximately the market price for oats at that time, but was more than twice the price of oats in the prewar days. In addition to this price guar-

¹ Mr. Acland in the House of Commons, August 23, 1916.

² Statement by War Office in London *Times*, March 1, 1917.

antee the farmer was assured the assistance of the Food Controller in obtaining agricultural implements and supplies. Another condition of the contract provides that the farmer was to apply artificial fertilizer to the field at a rate not less than 25s. worth per acre (sulphate of ammonia and superphosphate).

This further exemplifies the government's change of policy toward agriculture. This contract represents the government's effort to increase both the acreage and yield per acre of oats.

That this guarantee had the effect of stimulating the production of oats in 1917 can not be doubted. In Ireland alone the acreage jumped up 400,000 acres or 37 per cent over the 1916 acreage which was already considerably above the five year average before the war. The increase in the United Kingdom amounted to 600,000 acres or 14 per cent.

A minimum price for wheat was discussed at great length by committees and by the press. The Reconstruction Committee appointed in August, 1916, "to consider and report upon the methods of effecting an increase in the home-grown food supplies, having regard to the need of such increase in the interest of national security," reported, January 30, 1917, among other things, in favor of a guaranteed price of 42s. per quarter (480 lbs.) (\$1.28 per bushel) for wheat and 23s. per quarter (312 lbs.) (70 cents per bushel) for oats. These prices were very much below the prices at which these grains were selling at the time of this report. Oats were double this and wheat 80 per cent higher. (Oats 47s. and wheat 75s. per quarter.) They also recommended a protective tariff on farm products, if such a tariff was laid upon any other product of the United Kingdom.

No action was taken on price guarantees for wheat or oats at this time for the 1917 crop, though later when the Corn Production Bill was enacted into law, minimum prices for both of these grains were established. The Food Controller established a fixed price of 60s. for wheat and 38s. 6d. for oats during January, 1917, but these were later abandoned and new prices established in August by the new Food Controller.

The history of potato prices in England this year form an in-

teresting side light on the difficulties attendant upon price regulation. These will be discussed in connection with food control. It is sufficient to say that a minimum price for potatoes of £6 per ton was fixed in January with the result that the potato acreage increased by over 70,000 acres or 18 per cent over 1916 and by 14 per cent over the 1910-1914 average.

The active work done by the Board of Agriculture during 1917 in stimulating home production called forth praise and to Mr. Prothero, the president, is given credit for putting force behind this campaign and getting it out to the farmers.

The crops around which the campaign centered were wheat, oats and potatoes. Meat and milk production were also emphasized.

When the campaign for greater production was first formulated, it was evident that a number of problems would have to be solved before much could be done in the way of enlarged acreage.

The first question which presented itself was the labor supply. This had become more acute than in 1916, and strong methods were needed in order to secure labor enough for farm work. The first step taken was to get labor for spring work. This was accomplished by the use of prisoners, interned enemy aliens, soldiers, women and boys. Lord Milner stated in the House of Lords, June 27, "that 70,000 to 80,000 men had been made available for agricultural work. These consisted of prisoners of war, interned enemy aliens, and English soldiers. Over 120,000 women were at work on the farms with 20,000 to 30,000 in sight."

As a further means of remedying the existing labor situation the Board of Agriculture made plans for the more extensive use of farm machinery. Labor saving machinery of all kinds was furnished by the government to farmers to assist them with their work. Tractors were bought by the government and rented to groups of farmers to perform farm work—particularly for plowing and cultivating. It is estimated that over 500 tractors were provided by the government in 1917.¹

¹ *Country Gentleman*, February 2, 1918.

To prevent any further depletion, the military authorities were induced to provide for the virtual exemption of skilled agricultural laborers. It was provided that if a voucher is issued by the County Agricultural Committee in respect of a man that he is employed whole time on a farm at farm work, that he was engaged in such work on June 1, 1917, and is employed on work of national importance, that he is not to be called up for medical examination or reexamination without the consent of the County Committee.¹

But the army was not alone the occasion of withdrawing men from the land. Munition and other manufacturing plants had been paying greatly increased wages during the war, and, as a consequence, large numbers of men had gone to manufacturing centers, who formerly were farm laborers. To tempt these men to return to the land, the government made provision in the Corn Production Bill for a minimum wage for agricultural laborers of not less than 25s. per week. This was to prevent the return to the prewar rate of wages, which was approximately 20 per cent below this.

In these various ways the Board of Agriculture made provision for increased production in spite of a diminution in the numbers of skilled agricultural laborers.

The Corn Production Bill. The Corn Production Bill, which was passed in the summer of 1917 as part of the government's plan for greater home food production is one of the most important pieces of legislation dealing with agriculture that has been attempted in modern times. By its enactment England was committed to the policy of subsidizing and regulating agricultural production during the period of six years covered by the bill.

The main plan of the bill divides itself into four parts. Part 1 provides that if the average price for wheat or oats per quarter is less than the minimum price as fixed by the act, the occupier of any land upon which wheat or oats have been grown shall be entitled to be paid by the Board of Agriculture and Fisheries four times for wheat and five times for oats the difference be-

¹ London *Times*, July 25, 1917.

tween the average price and the minimum price for each acre so planted.

The minimum prices for wheat and oats established under this part were:

Crop for Year	Wheat Per Quarter	Oats Per Quarter
1917	60s.	38s. 6d.
1918 }	55s.	32s.
1919 }		
1920 }	45s.	24s.
1921 }		
1922 }		

Part 2 provides that agricultural wages shall be fixed by an agricultural board appointed by the Board of Agriculture after consultation with the Minister of Labor.

In fixing minimum rates for time work, the wages board shall secure for able-bodied men wages, which in their opinion are equivalent to wages for an ordinary day's work at the rate of at least 25s. per week.

Part 3 imposes a restriction on raising agricultural rents. It provides that where notice is given by the landlord to an existing tenant on a yearly tenancy to quit his holding, and the tenant within thirty days gives notice to the landlord requiring the question to be referred to the Board of Agriculture, the notice to quit shall not take effect until that question has been determined by the board. If the board considers that the notice has been given with the object of obtaining an increase of rent or other advantage which could not reasonably have been obtained if Part 1 had not been in force, the board may enter order that the notice shall not be valid or of any effect.

Part 4 gives power to enforce cultivation of land. The Board of Agriculture is given the power to serve notice on any occupier to cultivate his holding according to the directions given by the board. If any land is unoccupied they may enter on the land and cultivate it or authorize some one else to do it. Further provisions in contracts between landlord and tenant are not binding which interfere with the enforcement of the board's orders.

The act applies to Scotland and also to Ireland, although other

officers exercise some of the powers. In Ireland the Lord Lieutenant takes the place of the Board of Agriculture. Part 3 does not apply to Ireland.

The act is to remain in force until the end of 1922.

Plans for 1918 and After

With the demand for more home grown food increasing every day, the Board of Agriculture made a strong campaign to increase the acreage under crops in the United Kingdom in 1918.

Beginning with the arable acreage in 1872 as a model, the Food Production Department of the Board of Agriculture aimed to equal that acreage this year. To do this, something over 2,000,000 acres of land in grass and permanent pasture were to be plowed up. During July and August of 1917, it is estimated that over 100,000 acres of pasture were converted to arable.¹

In order to carry out the details of the plan, 9,000 tractors were ordered — most of them from the United States. By the first of September 1,000 had been received and were at work.¹ The remainder were to be delivered as fast as ready, and all were to be in operation before the end of March, 1918.

Although the tractor is filling a large space in the program, they are not making the mistake of depending entirely upon it. Horses are being provided by the government to farmers for plowing and other farm work.² Then, too, more labor must be supplied to help with the seeding of this additional acreage and this the Board of Agriculture is endeavoring to do. This labor, as before noted, comes largely from soldier help loaned for a season, women, and interned aliens.

The conversion of permanent pasture to arable is the first step in the government's scheme to increase the wheat acreage by 2,500,000 acres in 1918. This will mean more than doubling their present acreage which was about 2,100,000 acres in 1917. With a normal crop and a doubled acreage the United Kingdom would be able to supply itself with half of its total wheat require-

¹ London *Times*, August 26, 1917.

² *Daily Mail*, August 2, 1917.

ments during the coming year. With shipping conditions fast becoming critical, this will relieve the present tonnage of a very considerable burden, as well as relieve the people of the British Isles of the worry attending an uncertain supply of breadstuffs.

The changed policy of the government toward agriculture makes the outlook for the future more assuring now, than ever before. The minimum guarantee for wheat for the next two years of about \$1.55 per bushel and about \$1.00 per bushel for oats with the prospect that the price will be much higher gives to arable farming an aspect of certainty such as has not been witnessed in England since the middle of the last century. The minimum guarantee for potatoes planted on newly plowed ground points to another big crop of potatoes in the islands. The promise of the Food Controller to buy the entire commercial crop at practically the same prices received this year, adds stability to that industry. The dairy farmer has the guarantee of the government that the price of milk shall not be less in the winter of 1918-19 than it was during the previous winter. Beef cattle prices are to remain at 67s. per hundred (\$16.25 roughly), live weight for beef for the army until July 1, 1918, when the 60s. (\$14.50 roughly) price shall come into effect. All of these prices are not as high as the market is, or would be, if left to free competitive bargaining, but they represent advances of substantially 60 to 75 per cent or more over the prices ruling prior to the war period. These guarantees together with the prospect of much higher prices in wheat and oats, provide the English farmer with safeguards against any evil consequences involved in shifting to a more intensive agriculture, as well as providing protection from some of the other numerous risks that he has been forced to carry in the past.

CHAPTER III

Activities of the Government in the Control of Consumption and Price of Food

PRELIMINARY CONSIDERATIONS

From the beginning of the war the price level in England mounted slowly until 1916. Then the rise became more abrupt. This was the cause of considerable hardship among the masses of the English people and was the occasion for a great deal of adverse criticism of the government. During this year the demand became more and more insistent, particularly from labor organizations, that some governmental agency should handle England's food problem. Mr. Prothero, in the House of Commons, May 22, urged the government "to grapple immediately with the problem of the food supply, and to put the nation on rations at once instead of waiting until they were compelled to do so." While these demands were being made a great deal of discussion was taking place among economic writers about the general question of control of food prices. The most of the discussion turned upon the advisability of the government attempting to fix maximum prices for foodstuffs in an attempt to keep down the increasing cost of living. The bulk of the opinion seemed to be in favor of extreme caution in tampering with the prices of commodities. In a country like England, which is so dependent upon foreign countries for her very subsistence, it was argued that the holding down of prices would have the double effect of diverting supplies to other countries and keeping down the production of those products so essential to the existence of the mass of the English people. (It was during the summer of 1916 that a departmental Committee on Food Supply and Prices was appointed to inquire into the causes of the rise in the prices of commodities.)

In the fall of 1916 when it became apparent that a world food shortage was imminent, the government took the first step looking toward the complete control of foodstuffs imported into the United Kingdom. The King in Council invested the Board of Trade with wide powers and discretion to make orders "in the interest of the public and for maintaining the supply of any article of commerce."¹ In fact, this board was given power over the supply, consumption, distribution and price of all foodstuffs. Some orders were issued by the board, primarily with a view to the conservation of the existing stocks of food and maintenance of the supply.

THE MINISTRY OF FOOD

This was merely a preliminary step to the establishment of a new government department called the Ministry of Food. The bill providing for this new department received royal assent December 22, 1916, and on December 26, Lord Devonport took the oath of office as England's first Food Controller.²

The act establishing the new ministry placed upon the Food Controller the duty of regulating "the supply and consumption of food in such a manner as he thinks best for maintaining a proper supply of food, and to take such steps as he thinks best for encouraging the production of food."²

Under the Defense of the Realm regulations the Food Controller was given wide powers for the insurance of an adequate supply of food for the United Kingdom.³

The following powers were granted to him:

1. To make orders regulating or giving directions with respect to the production, manufacture, treatment, use, consumption, transport, storage, distribution and supply, of any "article" (this expression includes animals live or dead).

2. To require any persons owning any article to place at the disposal of the Controller said article at such terms as the Controller may direct.

¹ London *Times*, November 18, 1916, p. 9.

² *Food Supply Manual* (First Edition).

³ *Commerce Reports*, August 3, 1917.

3. To require information on stocks of food supplies on hand, prices, and cost of production of any article.

4. To take possession of any factory, workshop or other premise in which any article of food is produced or manufactured for sale.

5. To hold inquiries with respect to any article of food. To delegate to other departments the exercise of the powers of the Food Controller.

Vested with these powers the Food Controller had adequate authority for the complete control of all foodstuffs in the United Kingdom. He was also given power to encourage home production of food, but this function was largely delegated to the Board of Agriculture and Fisheries. They were given further powers to enter on land and cultivate it if, in their opinion, it was not being cultivated in the best interests of the country.¹

As soon as the Food Controller was clothed with sufficient authority, orders looking toward the conservation and maintenance of the food supply of the United Kingdom were issued.

They could be classified in the following manner:

1. Price fixing orders.
2. Prohibition of the exports of various articles.
3. Permitting certain industries to run only under authority of the Food Controller — brewing interests.
4. Restriction of the use of certain grains for human food.
5. Taking possession of certain industries — flour mills.
6. Directions as to the manufacture of certain articles:
 - Flour manufacture
 - Chocolate manufacture
 - Candy manufacture
7. Requisitions of imports.
8. Rationing orders.
 - Rationing of horses order.

While actual or imminent shortage of food is doubtless the main reason for food control, a supplementary reason may be

¹ Senate Document No. 47, 65th Congress, 1st Sess.

found in the practical necessity of an equitable distribution of food supply at times when there is a shortage. Underlying the problem of an equitable distribution lies the question of price. At least the trend of prices before control was undertaken promised unnecessary suffering on the part of the masses. Food control would hardly be possible without concurrent price control.

The following résumé of prices of agricultural products indicates the reasons for the insistent demand for price control.

PRICES OF AGRICULTURAL PRODUCTS IN GREAT BRITAIN

The prices of most agricultural products — in fact all food products — sharply increased after the outbreak of the war. Wheat jumped 2s. 8d. per quarter (8 cents per bushel) in August, barley 3s. 6d. per quarter (10½ cents per bushel) and oats 2s. 5d. per quarter (7¼ cents per bushel). Butter, cheese, and bacon all showed a sudden rise. These products, it will be seen, come largely from abroad and the price of home grown product is influenced by the prices, real or anticipated, of the imported product. Beef, mutton, milk and wool prices were slower in rising than the above mentioned articles. England is not so largely dependent on her imports for these products. One of the causes of this abrupt rise in price of some products might be found in the fact that the demand for the imported products became insistent through fear of the foreign supply being cut off.¹

Cotton was depressed in price due to the large American crop and the cessation of shipments to Austria, Germany and Belgium. Wool remained stationary for a while after the beginning of the war, until the first shock was passed, when it began to climb.

When the first period of hysteria had passed, prices approached normal again and in September and October were appreciably lower than in August. With the approach of winter, however, prices again began to climb and in December the price level was again up to the level of August and continued its upward course during the winter months.

In comparison with the close of 1913, prices in December, 1914,

¹ Bulletin of the United States Bureau of Labor Statistics, No. 170.

were considerably higher: sugar, 86 per cent; wheat (native), 42 per cent; beef, 37 per cent; wool, 40 per cent; bacon, 8 per cent, and butter, 16 per cent. Cotton, on the contrary, was 47 per cent lower.¹

The trend of prices during the latter half of 1914 was sharply up after the outbreak of the war with a lapse in September and October, but with an upward swing during the closing months of the year, when the prices were 15 per cent higher than those of July.

From 1915 to 1917, prices of agricultural products in England mounted steadily. There were some periods when slight depressions took place due to favorable crops, but these only had a temporary effect as prices soon began their upward march again. The rise in 1915 was quite largely due to the increase in freight rates brought about by the fact that the British Government commandeered and requisitioned over one-third of the entire British mercantile marine.² The rise in price was especially noticeable toward the end of the year when the shortage of tonnage became very pronounced. (For increase in freight rates see Table XV.) The slight depression during the summer and early fall of 1915 was due to abundant crops in England as well as a bumper world crop of wheat.

In 1916 prices increased rapidly until April, the *Economist* index number (wholesale prices) at that date showing a 63 per cent increase over July, 1914. During the summer prices remained at about that level, but leaped up again when the short crops of grain throughout the world presaged a shortage of necessary breadstuffs before another harvest. This added to the increased activity of the submarines and the beginning of Germany's restricted zones around the British Isles, served to boost freight rates with the result that prices of all products rose perpendicularly. Wheat jumped 12 cents per bushel while barley and oats each rose 25 cents per bushel in the month of December.

Wholesale prices closed 90 per cent higher than the July, 1914, level.

¹ London *Times*, January 22, 1915.

² *Journal of Royal Statistical Society*, March, 1916.

In 1917 prices still mounted but not so rapidly as at the close of 1916. The peak was reached in June when the *Economist* index number showed the rise over July, 1914, to be 120 per cent. It declined slightly in the summer and early fall, but rose a little as winter came on.

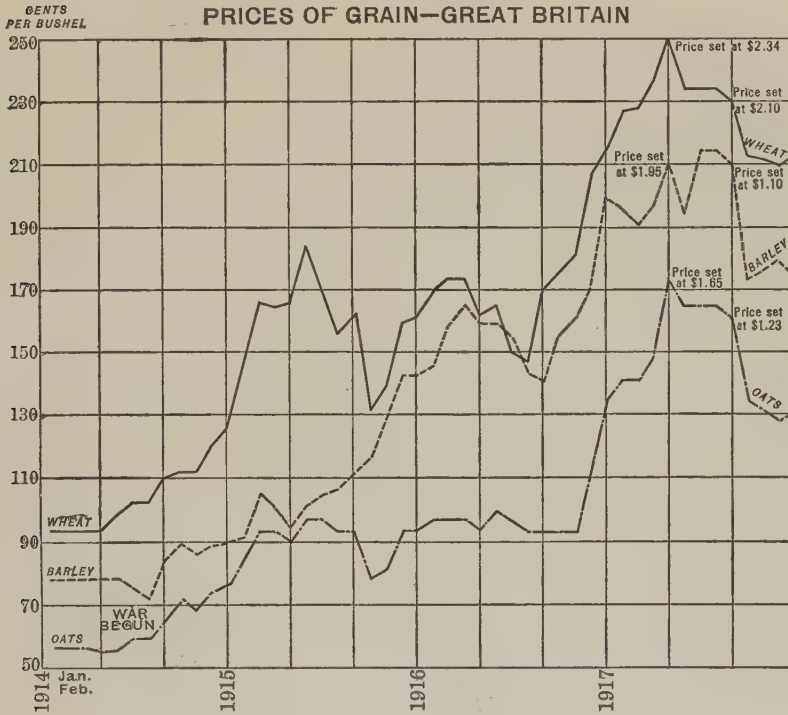


Chart VI. The pronounced increase in grain prices came between the fall of 1916 and the time of price regulation in 1917.

Causes of the Rise in Prices

Although some of the causes of the rise in prices of agricultural products have been mentioned, they do not explain all of the rise.

In general prices were affected by the following causes :

1. Disturbed conditions of trade and transportation.
2. Shortage of the supply of foodstuffs.
3. Increase in the demand for food products.
4. Increase in ocean freight rates and insurance.
5. Money supply and credit.
6. Success or failure of Allied armies.
7. Speculation and hoarding.

Disturbed transportation due to submarine activities and the use of merchant vessels for war purposes, was responsible for a great deal of the increase in the price level. The supplies from some countries were shut off entirely, and when, as in the case of Russia, their product was a big factor in the market, it was responsible for a considerable portion of the increase in price. This is particularly true with regard to barley, as Russia ordinarily raises one-third of the total barley of the world and is the predominating factor in the international trade in barley. The cessation of trade with enemy countries boosted the price of some commodities. This is particularly true of sugar in England, over half of the supply of which had formerly come from Germany and Austria. During the last year of the war other sources of the supply have been eliminated from the market, not because of hindrances but because they are so remotely situated relative to England that ships can not be spared to make the long voyage necessary to obtain these supplies. This is true of the wheat in Australia and sugar in Java.

Disturbance of trade also has the effect of raising the price of the great staples such as the cereals and sugar because of their keeping qualities. Then, too, there is the psychological cause — the fear of famine. As soon as the war began, hoarding of both sugar and flour drove these products up in price out of all proportion to the condition of the market.

The actual shortage of supply of the principal food crops had an elevating effect upon the price of these commodities. Particularly is this true in 1916 and 1917. The world wheat crop for

1916-17 was over a billion bushels short of the previous year,¹ and the shortage of shipping further aggravated the effective shortage. The potato crop in England in 1916 as well as the world at large was below normal, causing unprecedented prices to be paid for this commodity.

The decreased labor supply undoubtedly had an adverse effect upon production in all of the warring countries in 1916. England succeeded fairly well in resisting the general decline in production with a strenuous campaign for bigger crops.

Part of the shortage of supply was due to the overrunning of fertile and productive lands by armies. Particularly is this true of Northern France and Belgium where large areas of land on which wheat, oats and sugar beets were raised either fell into the hands of the enemy or were overrun.

The war and the mobilization of vast armies of men brought about an increase in the demand for food products. The government became a factor in the market and by buying in large quantities increased the pressure upon the accumulated stocks. Moreover, more food is consumed by the soldier than by the civilian in his ordinary routine work. Even the civilian during war time consumed more because of the longer hours and speeded up production.

Ocean freight rates and war risk insurance were responsible for a large portion of the cost of food produced in the United Kingdom. The following table shows the increase in freight rates per bushel of wheat during the war.²

TABLE XV
OCEAN FREIGHT RATES PER BUSHEL OF WHEAT, NEW YORK TO LIVERPOOL

		Monthly Average				
	1913	1914	1915	1916	1917	
January	...	.047	.195	.394	.914	
February	...	.038	.232	.450	1.045	
March	...	.032	.245	.492	1.040	
April	.061	.040	.238	.402	....	
May	.070	.032	.237	.387	....	
June	.053	.042	.238	.237	....	

¹ Monthly Crop Report (U. S.), May, 1917.

² This table was compiled from the publications of the International Institute of Agriculture, Bureau of Statistics.

	1913	1914	1915	1916	1917
July	.047	.054	.211	.303	....
August	.050	...	.210	.357	....
September	.050	.062	.276	.291	....
October	.058	.083	.400	.286	....
November	.052	.125	.403	.540	....
December	.046	.162	.400	.643	....
Yearly Average	.054	.067	.274	.400	....

In addition to influences that affect the supply and demand of commodities themselves, there is also the influence of money supply and credit. In England the ratio of gold to notes issued stands as follows:¹

	Per Cent.
End of 1914.....	117.7
End of 1915.....	57.6
End of 1916.....	43.6
End of 1917.....	37.6

The *Economist* states (Nov. 17, 1917) that "while the production of goods has been diminished by the withdrawal of men into war or war work, the output of gold has continued almost to its normal extent and paper money has been multiplied by five, without taking into account the huge increase in banking credits. It is small wonder that prices have risen."

As the *Economist* intimates at the end of the foregoing paragraph, the increase of purchasing power has been further augmented by the inflation of credit. This is accomplished by loans from the banks for the purchase of government bonds with which to finance the war. By this artificial creation of credit, the total amount of purchasing power of a country is increased, and, if as is the case, no increase in the volume of goods is brought about, inflation of prices is the result.

The fortunes of war probably have exerted an influence on the price level because of its psychological effect. In the Allied countries some of the temporary depressions in the price level have been attributed to gains by the Allied armies. In the summer of 1916 it will be noted prices remained stationary for some

¹ *Economist*, November 14, 1917.

length of time in England, in fact they were depressed somewhat during part of the summer. This period coincided fairly closely with the Allied offensive, and it may be said that the success of this offensive may have exerted some influence upon the ruling prices. The *Statist*¹ (London) advances this cause for the temporary depression of prices in the following:

Our index number shows that in June the prices of 45 commodities declined 4.1 per cent, which is the first decided reaction since war began nearly two years ago. The fall occurred in nearly all commodities other than textiles, and appears to have been due mainly to the progress of the Allied armies, and the hope that the end of the war is now within sight. . . . In other words the fall in prices reflects the world's opinion of the probable duration of the war. Probably it will be found that if the Allied armies meet with any decided check, prices will temporarily recover, only to fall again as the Allies become stronger and stronger and victory becomes more and more assured.

The best criterion of the relative prices of agricultural products is the agricultural index number found in the reports of the Board of Agriculture and Fisheries for England and Wales. The following table gives the index numbers of the prices of various farm products based upon the average prices for the years 1906–1908.² Three years before the war are given as well as the three war years. The table in itself is very interesting, and tells very clearly the changes that have been going on within the industry itself with respect to the relative profitableness of different crops and products. (These index numbers do not coincide with the annual average prices given in Table XXIX because of the method used in computing these numbers. The annual price is not taken in determining index numbers, but the price that reigns during the months when the crop is usually sold off of the farm. Either may be used to show the price trend.)

As will be noted the grains — particularly wheat — advanced most in price during the three war years as compared to the years before the war.

¹ July 15, 1916.

² See Board of Agriculture and Fisheries. Agricultural Statistics, 1914–1916, Part 3.

TABLE XVI

INDEX NUMBERS OF PRICES OF PRODUCE SOLD OFF FARMS IN ENGLAND
AND WALES

Average Price, 1906-1908 = 100

Commodities	1906-1908	1911	1912	1913	1914	1915	1916
Wheat	100	107	107	101	125	156	206
Barley	100	119	118	112	113	166	211
Oats	100	114	115	103	137	163	191
Potatoes	100	111	124	98	93	120	256
Beans and Peas.....	100	103	110	103	114	149	179
Vegetables	100	134	125	111	134	153	193
Milk	100	106	109	106	109	124	167
Butter	100	105	106	105	106	123	144
Cheese	100	105	110	101	109	131	157
Cattle	100	103	113	115	117	150	174
Sheep	100	87	100	106	110	126	152
Pigs	100	100	109	126	118	144	187
Wool	100	112	113	132	133	190	174
Poultry and Eggs.....	100	102	107	109	103	124	152
General Index Number.	100	106	112	112	111	138	178

This increase in the case of wheat amounted to more than 100 per cent while that of oats and barley is slightly under 90 per cent. Potatoes advanced out of all proportion in 1916 when the English crop as well as the world crop was short.

Animal products did not respond to the price changes as greatly as did the grains and vegetables. Milk advanced less than 60 per cent, cheese about 55 per cent and butter less than 40 per cent from 1913 to 1916. Prices for live cattle, sheep, and pigs came up a little more than dairy products in the war years although this increase was hardly 60 per cent. Wool was mounting up in 1915 but the action of the government in taking charge of the home clip at a price 35 per cent in excess of the price in 1914 prevented its further rise.¹ Its rise in 1915 had amounted to 45 per cent.

The general index number rose from 112 in 1913 to 178 in 1916, an increase of about 60 per cent. The grains greatly exceeded this rise while dairy products and meat were approximately 10 per cent below the general index number, with the

¹ London *Times*, January 19, 1917 (Annual Edition).

prices of dairy products a little below those of meat. "The modest rise in price of milk and butter as compared with that of other farm produce shows unmistakably that dairy farmers on the whole gained less than those who relied on corn, grain and meat for their revenue."¹

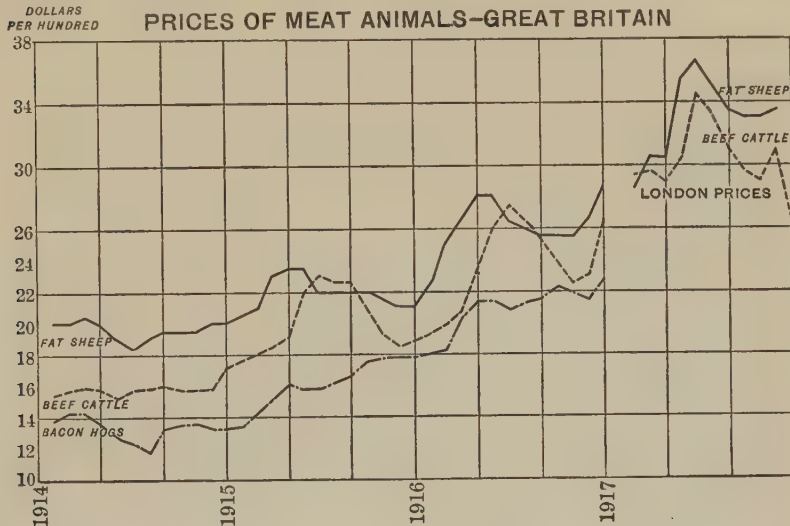


Chart VII. Prices of Meat Animals at Primary Markets. For 1917 the prices are for London only.

The foregoing observations are further illustrated by the following table:

TABLE XVII
WHOLESALE PRICES OF COMMODITIES IN ENGLAND
Index Numbers

	Vegetable Food, Corn, etc.	Animal Food, Meat, etc.	Sugar, Coffee and Tea	Total Food
1911	70	90	61	75
1912	78	96	62	81
1913	69	99	54	77
1914	75	100	58	81
1915	108	126	70	107
1916	133	152	86	130
	Increase nearly 90%	Increase nearly 69%		Increase over 70%

¹ Board of Agriculture and Fisheries, Agricultural Statistics, 1914, Part 3, p. 197.

Here again it will be seen that grain farming has been more profitable than meat and dairy farming.

The question arises: Have the farmers' profits risen in proportion to the increase of the prices of his products? They undoubtedly have not.

It is hardly necessary to point out that while these figures give a general indication of increased receipts by farmers for their produce, they afford no guide to the profits made by them, which would necessarily depend upon the extent to which their outgoings for labor, feeding stuffs, fertilizers, and other commodities have increased. For a profit and loss account the data are not available, but it is evident that the turnover of British agriculture during the war was substantially greater than the average, and was probably greater than in any recent year.¹

Profits probably have risen, as they have in most other industries. The foregoing discussion, however, brings out the unevenness of the rise in price and is some criterion of the increase in profitableness of various branches of the industry. It appears to be the universal experience that grain farming has gained at the expense of meat and dairy farming. This unfortunate state of affairs has been partially responsible for the depletion of the supply of live stock in the various countries with its consequent shortage of meats, fats, and milk.

FOOD AND PRICE CONTROL

The first concern of the government was to obtain a suitable supply. Ordinary economic motives had not met all the demands of the situation. The next was to effect an equitable distribution to all classes.

The main reliance in increasing supply at home was to assure producers a price which would ensure a profit and at the same time to keep the price low enough to relieve the consumers of all unnecessary burdens. This suggested minimum and maximum prices, both of which were tried, minimum prices or guarantees to producers being the main reliance. The use of maximum prices was unsatisfactory because thoroughly artificial. With respect to

¹ Board of Agriculture and Fisheries, *Agricultural Statistics*, 1914, Part 3, p. 197.

products largely or entirely brought from overseas maximum prices to consumers limiting the profits of middlemen have apparently been effective. But even in this case in setting prices had to be used, with due regard for the laws of supply and demand. In Germany prices were artificially kept so low to consumers that the plans of that government were avoided. (Dr. A. E. Taylor in report previously cited.)

Sugar

The beginnings of food control were made with sugar at the outbreak of hostilities, when half the supply was automatically cut off. The Royal Commission on the Sugar Supply was appointed August 20, "to inquire into the supply of sugar in the United Kingdom; to purchase, sell and control the delivery of sugar on behalf of the government and maintain the supply,"¹ which had been seriously deranged. Prior to the war England had received over half of her sugar from the Central Powers and about one-quarter from the rest of Europe. With the beginning of the war most of this sugar was cut off. The Russian supply was blockaded and large sugar beet areas in France and Belgium had fallen into the hands of the enemy. The supply from the Netherlands fell off almost entirely so that England was forced to seek her sugar in another quarter of the globe. The task of the commission then was to secure for England a sufficient supply of sugar from the cane producing centers of the tropical zone. In the main the supply came from Mauritius, Cuba, Peru, and the Philippine Islands.² In this they were quite successful as can be seen from the imports. They imported more sugar in 1914 than in any of the years just preceding the war. The imports in 1915 and 1916 were approximately 20 per cent less than the five year prewar average, but when the shipping situation is taken into account, it will be seen that this is not a bad record. "It was not until early in 1916 that reduction in supplies, rendered by exigencies of tonnage and of exchange became appreci-

¹ Interim Report of the Royal Commission on Sugar Supply.

² *The World's Sugar Supply*, by the National Bank of Commerce, December, 1917, p. 35.

able and sufficient to attract public notice. No serious privation would result if the domestic consumption of sugar were to be limited to three-quarters of a pound a week per head of population."

Next in importance to the assurance of the sugar supply was the arrangement for commandeering wheat through her dominion governments. This was accomplished in December, 1915, to insure a sufficiency of supply as well as to prevent speculation on the part of countries which normally exported wheat. In the fall of 1916 complete control of the transport of wheat for England and her allies was placed in the hands of a Royal Commission on Wheat Supplies. The rapid increase in freight rates, the great risk of transport, and the failure of the wheat crop in the northern hemisphere, made the trading of wheat an extremely precarious and speculative business. Rather than let the supply of wheat for their military and civilian population be dependent upon so many uncertain factors, this commission was formed for the dual purpose of coordinating all of the Allied buying under one head so that they would not be bidding against one another, and insuring that the supply of wheat coming to western Europe would not be shut off.

Breadstuffs

Wheat being the most important imported foodstuff the control orders issued in respect of this article bring out the policy of the new Ministry of Food with respect to maintenance of the supply. For the purpose of conserving the existing stock of wheat an order was issued prohibiting the feeding of wheat, pulse or other grain or foodstuffs to game. Then followed other orders which provided:

1. All flour manufactured in the United Kingdom shall be "straight-run flour" (except under authority of the Food Controller).

2. Subsequent flour orders provided for a mixture with wheat flour of flour from rice, barley, maize, oats, rye or beans. After April 10th the mixture was ordered to contain not less than 10

per cent nor more than 25 per cent of flour from some of the above grains.

3. Export of wheat and other grains and flours from the United Kingdom was prohibited.

4. No wheat, rye, or rice to be used except for: (a) seed; (b) flour manufacture; (c) manufacture into human food.

5. Flour mills taken possession of by the Food Controller.

6. Maximum prices for wheat, barley, and oats harvested in the United Kingdom in 1916, as follows:

	Per Bu.
Wheat—75s. per quarter of 480 lbs.....	\$2.34
Barley—65s. per quarter of 400 lbs.....	1.95
Oats—55s. per quarter of 312 lbs.....	1.65

These maximum prices were fixed April 20 and, as can be seen from the table below, the prices of these grains remained at approximately that level for the balance of the crop year, or until the new maximum prices for the 1917 crop came into effect.

These prices were slightly below the market at the time they were set and a great deal below the prices which these grains brought in the United States and Canada in the month of May. Whether they represent any success in holding down the price or not can not well be gauged. In the case of wheat the average price per quarter since the first of the year was 78s. 8d. (\$2.39)¹ while the price set was 78s. (\$2.37). The price of wheat normally rises in the United Kingdom in the months of May, June and July. In 1917, however, with a maximum price in effect, the price was held down somewhat below the price reigning at the time the maximum was set. The same is true of oats although not of barley. The price of barley, however, varies more than that of either oats or wheat so that it is hard to arrive at any conclusion in this case.

No conclusions can be drawn as regard the effect of this maximum price upon production during 1917 as it was set too late to have much effect on spring seeding.

The next step of importance in connection with the control of

¹ London *Times*, August 16, 1917.

wheat was the maximum price set for the 1917 crop on August 15. The prices announced by the Food Controller are:

For Delivery	Wheat and Rye, per qr. of 504 lbs.		Oats, per qr. of 336 lbs.		Barley, per qr. of 448 lbs.	
	<i>s</i>	<i>d</i>	<i>s</i>	<i>d</i>	<i>s</i>	<i>d</i>
Before						
December 1, 1917	73	6	44	3	62	9
December-January, 1918	74	6	45	3	62	9
February-March, 1918	75	6	46	3	62	9
April-May, 1918	76	9	47	3	62	9
After						
June 1, 1918	77	9	48	6	62	9

These prices, however, are not comparable with those set in the spring, nor with those prices in the table below, because the number of the pounds per quarter is greater in the above table. The following table gives the prices in terms of 480 pounds to the quarter of wheat, 400 pounds to the quarter of barley, and 312 pounds to the quarter of oats. (The amounts per bushel in American money are inserted in parentheses.)

For Delivery	Wheat and Rye, per qr. of 480 lbs.			Oats, per qr. of 312 lbs.			Barley, per qr. of 400 lbs.		
	<i>s</i>	<i>d</i>	\$	<i>s</i>	<i>d</i>	\$	<i>s</i>	<i>d</i>	\$
Before									
December 1, 1917	70	0	(2.13)	41	1	(1.25)	56	3	(1.71)
December-January, 1918	71	0	(2.16)	42	0	(1.28)	56	3	
February-March, 1918	71	11	(2.19)	42	11	(1.30)	56	3	
April-May, 1918	73	1	(2.22)	43	10	(1.35)	56	3	
After									
June 1, 1918	74	1	(2.25)	44	9	(1.36)	56	3	

(In converting shillings per quarter to cents per bushel the shillings were multiplied by 3.04 and the result reads cents per bushel.)

These prices were considerably less, it will be noticed, than the maximum for the 1916 crop, but were not far out of line with the prices set in the United States and Canada for the 1917 wheat crop.

In 1917 the Allied Governments entered into an agreement to purchase grain and certain other supplies through a single agent thereby eliminating the frantic competitive bidding which for example shot the price of wheat so high in Chicago in May, 1917, the supply to each being adjusted as nearly as possible on a basis of comparative need.

Potatoes

For the 1916 crop potato prices were set January 12 at 160s. per ton for January and February; 170s. for March and April and 180s. for May and June. Before this order was announced potatoes had sold as high as 240s. in Liverpool,¹ but the price soon dropped down to the maximum and remained there. There was some protest against this mainly because some farmers had disposed of their potatoes at a much higher level, while others would be forced to accept the lower price.

In the control of the potato prices in 1917, England has had some very interesting experience. Maximum potato prices were first set early in January at the following rate by the Food Controller,² after consultation with the Agricultural Departments of Great Britain and Ireland:

115s. per ton for delivery from September 15 to January 31, 1918.

120s. per ton in February-March, 1918 (about 87 cents per bu.).

130s. per ton for remainder of season.

These prices were considerably below the prices that farmers expected and were less than half of the cost of seed potatoes at that time. A great protest arose from potato growers against these prices. Agricultural bodies passed resolutions calling on the Food Controller to reconsider this action. Their protests were answered by Mr. Prothero, President of the Board of Agriculture, who announced that the policy of the government was to stimulate the production of potatoes, but not to cause such a large increase that there would be a glut of the market. He said, further, that they wanted potato growing concentrated on those lands where the largest yield could be obtained with the least expenditure of money.³

It appeared from this, then, that the government's policy was

¹ *London Times*, January 12, 1917.

² *Ibid.*, January 9, 1917.

³ *Ibid.*, January 18, 1917.

rather to discourage production of potatoes, at least to force the marginal land out of competition.

This explanation did not seem to quell the protest, so that two days later the Food Controller announced that the price fixing order had been further considered in view of an unfavorable season, and it was decided that "the prices named for potatoes shall not be regarded as contract prices but as *minimum* prices guaranteed by the government for potatoes of the first quality." This put a different aspect on potato production and represented a complete reversal of policy in regard to this crop. This price, then, was the price fixed by the government for the 1917 crop.

The effect of this guaranteed price on the acreage and production of potatoes is easily seen in the returns for the United Kingdom. The acreage jumped up to 210,000 acres or over 18 per cent, while the production went up 3,100,000 tons or 57 per cent. The yield per acre was exceptionally high and this fact is partially responsible for the large increase in production. Thus Mr. Prothero's fears of a glut in the potato market were realized. Before the government prices went into effect (September 15), potatoes were selling at about 80s. per ton,¹ with some as low as 70s.—about the prewar level. After this date the price rose to 120s. and remained there for some time. There were cases, however, of sales below the minimum and it was evident that the price was being held up artificially.² Accordingly Mr. Clynes in the House of Commons, November 8, announced the abolition of the minimum price by the War Cabinet. They decided to allow "a free market for sales by growers throughout the United Kingdom subject to the continuance of the existing maximum price of 130s. per ton" and certain other reservations. (The maximum price of 130s. per ton had previously been set by the Food Controller.) In order to fulfil its pledge with the growers, however, the government decided to compensate them for sales at a lower figure than 120s. in the following manner:

¹ Mr. Runciman, in House of Commons, October 31.

² London *Times*, November 9, 1917.

The Food Controller will fix month by month a base price for each of the principal potato producing areas in the United Kingdom, and every grower will receive from the government a money payment based upon the amount by which the average price realized by his sales in lots of four tons or more during the month falls below the guaranteed figure of 120s. per ton, provided that sales made below the base price will be treated as having been made at that price.¹

That these minimum prices were not easily enforceable may be seen from the following excerpt from the debate in the House of Commons:

Mr. Clynes (Parliamentary Secretary of the Ministry of Food). This schedule will come into operation November 19, 1917. In the meantime the existing minimum will remain in force, but the government will not institute proceedings under the Defense of the Realm regulations against any grower who chooses to sell at a lower figure, and forego any claim to compensation under the government guarantee.

Mr. Lough asked with reference to sales which have taken place since September 15—the day on which the government guarantee came into effect—would anything be done to meet the cases of those who were forced to sell.

Mr. Clynes indicated that proceedings are not likely to be taken.

The 1918 Crop. With a view toward maintaining a large acreage in potatoes in 1918 the government guaranteed a minimum price to growers.² The minimum scale follows:

Time of Delivery	England and Wales	Scotland
	£ s	£ s
Nov. 1, 1918–Jan. 31, 1919.....	6 0	5 10
Feb. 1–March 31.....	6 10	6 0
April 1–end of season.....	7 0	6 10

These prices were to apply only to potatoes grown on acreage in excess of the total acreage under potatoes on the holding in 1916 and were to be subject to the conditions that the total acreage under potatoes on the holding in question must not be less in 1918 than in 1917, and that any directions issued by the Board of Agriculture regarding spraying, harvesting, etc., shall be duly carried out.

This follows very closely the principle laid down in the Corn

¹ *London Times*, November 9, 1917.

² *Manchester Guardian*, January 3, 1918.

Production Bill and earlier guarantees. Agriculture is not to be forced to carry the risks of weather and market during the present crisis in England, but is given the assurance that these risks will be borne by the people, all of whom are vitally interested in the supply of foodstuffs raised in the United Kingdom. The guarantee likewise expected to see some of the grass lands broken up and put into potatoes in 1918.

The Food Controller further announced (January 3, 1918) ¹ that he will purchase the entire commercial crop of potatoes of Great Britain as from November 1, 1918. The price will be announced later when the crop is harvested, but he announced a minimum scale for potatoes so purchased ranging from 100s. to 130s. in England and from 90s. to 120s. in Scotland. The prices from the Irish crop will be announced later.

It is not the intention of the Food Controller to fix any prices before November 1, but if the national necessity demands it maximum prices may be fixed before then. These maximum prices, however, shall not be less than 160s. per ton for August and 140s. per ton for September and October.

From the Food Controller's announcement it is evident that the government does not wish to repeat its experience with potato prices in 1917. Instead of a mere announcement that potatoes shall not be sold at less than a set price, the government proposes to buy the entire commercial crop of potatoes with the object of maintaining the price at a remunerative level. It recognizes that prices can not be maintained by a mere announcement, but some control over the supply must be exercised in order that the prices announced may be effective.

Provisions

The prices of beef and dairy products were not so responsive to war conditions as the price of the cereals. Beef prices reached a high level, however, in 1916. Fat cattle which brought 9s. 3d. per stone of 14 pounds in the summer before the war sold at 16s. in the summer of 1916. In 1917 the prices rose to 20s. and there

¹ Manchester *Guardian*, January 3, 1918.

was a great clamor for the reduction of this price by the Food Controller. The whole problem was complicated by the fact that the lack of tonnage made feed hard to get and as a consequence it was very high in price. Mr. Prothero as early as April, 1917, announced that there would have to be a material reduction of England's cattle owing to the fact that all cargo room possible would have to be used for human food.¹

Store cattle had likewise risen very appreciably since the beginning of the war. This evidently was due to the fact that farmers who wanted to feed these cattle bid the price up in anticipation of still higher prices of beef. Here we see one instance of one class of farmers — the breeders and raisers of store cattle — whose product was very materially enhanced in price by war conditions, which brought about the increase in the price of meat.

When it was proposed by the government to take for the army a considerable proportion of the supply of live stock marketed in the United Kingdom during the winter of 1917-18, the Food Controller set a maximum price for live cattle, as follows:

Time of Delivery	Per Cwt. (live weight)
	<i>s</i>
September, 1917	74
October	72
November-December	67
After January, 1918	60

Lord Rhondda, the new Food Controller, in the House of Lords on July 26,² explained the prices, saying that they were 60 per cent higher than prewar prices. He realized that farmers had bought store cattle at unprecedented prices in anticipation of high prices for fat cattle in the winter, and had provided higher prices in September and October so that these farmers could realize on their cattle during these months without "very heavy losses." He clearly stated, however, that the price of meat to the consumer must be very materially reduced and felt that this was of prime importance.

¹ *London Times*, April 14, 1917.

² *Ibid.*, July 27, 1917.

As soon as these prices were announced a very considerable protest went up from the feeders and graziers, claiming that these prices would "cause the rearing of cattle and the production of meat to be unremunerative to farmers."¹ A meat famine was freely predicted due to the fact that no grazier could afford to stay in the business with prices at that level.

The War Cabinet realized that greater production could not be secured with the farmers in such a dissatisfied state of mind, and they finally conceded the appeal of the farmers for a revision of the scale of maximum prices. It was decided that the November and December price of 67s. per hundredweight should continue until July 1, 1918, and that the 60s. maximum should then come into force for the rest of the year.² This evidently satisfied the farmers as no further protest was noted.

In order that the cost of producing beef should be cut down, the Food Controller announced maximum prices for feeding stuffs, an appreciable reduction occurring in home manufactured linseed cake from £22 to £19 per ton.

Maximum pork prices were issued by the Food Controller in November, 1917. The maximum live-weight price for pigs was placed at 18s. per score of 20 pounds. (Approximately \$21.90 per hundredweight.)

Milk

Milk prices, as we have seen, did not respond very quickly to the change in the prices of other products from the farm, particularly those of grain. The contracts made in the fall for the winter months of 1914 were on the average but little higher than those of the previous autumn even though grain prices showed a rise at the outset. Milk prices advanced steadily though slowly during 1915 and 1916 as can be seen from the table. The price of wholesale milk delivered in London which averaged 9¼d. (roughly 18½ cents) per gallon in 1913, rose to 15d. (30 cents) per gallon in 1916.

¹ Resolution of Central and Associated Chambers of Agriculture in London *Times*, September 7, 1917.

² London *Times*, October 10, 1917.

This rise in price of so important a commodity in the family budget met with opposition from the consumers generally, and one of the first orders issued by the Board of Trade after it had been clothed with power to regulate prices was one to limit the price of milk. The first order (November 27, 1916) limited the price to that in effect November 15, 1916. It also limited the price for future months to 2d. a quart retail and $6\frac{1}{2}$ d. per imperial gallon wholesale in excess of the price for the same month in the year before the war.

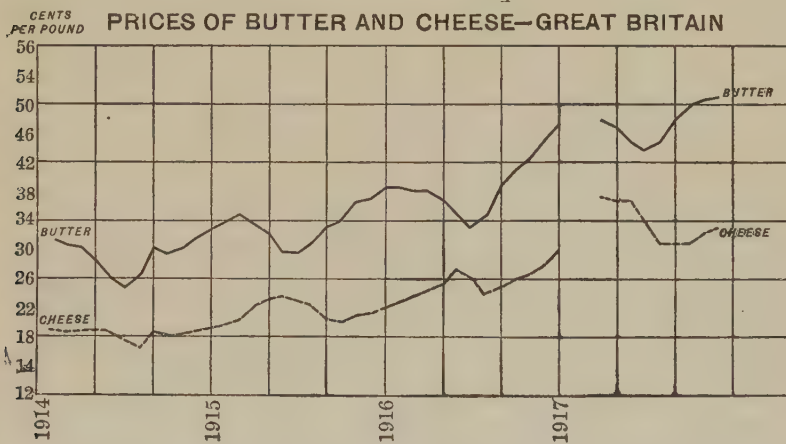


Chart VIII. Wholesale Prices of Butter and Cheese. The rapid rise of 1916 was stopped by the Food Administration.

The Food Controller next issued an order in January, 1917, which with a slight amendment in February provided that when milk is sold or offered for sale wholesale to be delivered on the premises or at the railway station of the buyer, the price paid should not be more than $6\frac{1}{2}$ d. per imperial gallon in excess of the price of milk on the 15th day of the corresponding prewar month. For retail milk the excess allowed was 2d. per imperial quart.

During the spring months when milk contracts were renewed summer prices usually came into effect. The Board of Agriculture, however, realized that the institution of summer prices so early would have a serious effect on the milk supply, so this

board succeeded in getting the Food Controller to prolong the winter prices until May.¹

In addition the Food Controller guaranteed that the price of milk for the winter months of 1917-18 should be not less than 1s. 8d. per gallon.

For the winter of 1917-18 the price of milk was set by the Food Controller September 9. The sliding scale follows:

For October (34 cents) 1s. 5d. per imperial gallon.

For November (39 cents) 1s. 7½d. per imperial gallon.

For December to March, 1918 (42 cents) 1s. 9d. per imperial gallon.

The corresponding retail price was:

For October (49 cents) 2s. per imperial gallon.

For November to March, 1918 (57 cents) 2s. 4d. per imperial gallon.

These prices represented a material increase over the prewar prices obtained for milk. Whether they were high enough to take care of the exceptional increase in the cost of feeding stuffs can not easily be answered. It has been mentioned before that the price of milk and dairy products did not rise proportionate to the increase in grain and other farm products. The reports of the Board of Agriculture on prices and supplies of agricultural produce for 1914 to 1915 and 1916 show that price of dairy products lagged behind grain prices. In the 1916 report it is stated that "corn stood relatively to 1906-1908, at a higher level than animal produce."

During the autumn of 1917 frequent reference is made in the press and reports of the Department of Agriculture relative to the shortage of milk. It is said that the shortage can be accounted for on purely economic grounds, as milk production in many districts has not been consistently profitable since war conditions disturbed the ordinary routine of intensive dairy farming.²

In the House of Commons on December 6 it was admitted that

¹ *London Times*, December 3, 1917.

² Agricultural Correspondent to the *London Times*, December 3, 1917.

a shortage of milk obtained in some districts. Likewise the second Interim Report of the Committee on Production and Distribution of Milk in December stated that although they do not anticipate a milk famine, local shortages will occur.¹

These shortages are probably not due to any considerable decrease in the number of dairy cattle, as the estimate shows little decrease, but it is rather due to the decrease in the yield per cow due to the shortage and high cost of feeding stuffs.

The Food Controller has already guaranteed the price of milk for the summer period as well as for the winter of 1918-19 so as to encourage milk production during that period. The guarantee provides that the price of milk shall be the same as that for the present winter period.²

Other Dairy Products

Little attempt was made at control of butter and cheese until the fall of 1917. These products came largely from overseas and their control thus was quite difficult.

Probably the most important order was issued late in August which prohibited the importation of butter, ham, bacon and lard except under license of the Board of Trade.³ Soon maximum prices were set both for cheese and butter imported into the United Kingdom, as well as for the domestic product.

In connection with the above order it was announced that the Ministry of Food was setting up in the United States a single buying agency to buy bacon, hams, and lard. This work is being facilitated by the Meat Division of the United States Food Administration.

SUMMARY

In England the Ministry of Food works very closely with the Boards of Agriculture of England, Scotland, and Ireland. In general it can be said that the Boards of Agriculture in the present emergency in addition to their regular duties, engaged in

¹ Manchester *Guardian*, December 21, 1917.

² *Ibid.*, January 1, 1918.

³ London *Times*, August 3, 1917.

promoting the increase of agricultural production, with special reference to corn and other essential foodstuffs.

The Food Controller regulates the supply and sale of foodstuffs with a view toward "securing an equitable disposal and distribution of all essential articles of food."

The Board of Agriculture has for its main work the increase in production and is thus handling the supply from the producer's end. The Food Controller, on the other hand, is primarily interested in the sale and distribution of foodstuffs and is, therefore, interested in the consumer's end.

From the beginning food control in England has been a difficult task. With the tremendous increase in the cost of foodstuffs and its consequent effect upon the laboring classes, there arose the feeling that profiteering was rampant. The public clamored for the institution of some department that would be able to secure cheaper food for the people. Too much was expected of the Food Controller and his orders. After Lord Devonport had been in office five months he was berated because profiteering had not been curbed and because the price level was still rising. In June he resigned on account of ill health, and was succeeded by Lord Rhondda, who instituted a more vigorous policy of control. As he stated in the House of Lords on July 26, his policy was to "fix the prices of those articles of prime necessity over the supply of which I can obtain effective control at all stages, from the producer down to the retailer. Such prices will, as far as possible, be fixed on the principle of allowing a reasonable pre-war profit for those engaged in the production and distribution of the particular commodity. Indeed, the policy will, in effect, be one of determining profits at every stage, though it will take the form of fixing prices."

More emphasis is placed upon control than upon price fixing as an arbitrary means of holding down prices. With a system of control over the distribution and sale of a commodity, profiteering can be eliminated, and food control will have accomplished its end. Throughout the present Food Controller's policy has been control of supply and profits rather than prices as such.

Maximum wholesale and retail prices have been set on necessities of life beginning with the primary producer or importer and ending with the retailer. At each step, then, profits are fixed and the public is aware of any profiteering. This policy possibly may not satisfy those people who insist that present prices of food are entirely the result of speculation. With the facts before the public, as they now are, however, this view can not long obtain. The public is being enlightened as never before about questions of marketing and distribution of the every-day articles of consumption.

TABLE XVIII

UNITED KINGDOM ¹

Acreage under Crops

	Wheat Acres	Barley Acres	Oats Acres	Potatoes Acres	Beans Acres	Peas Acres	Turnips & Man- Swedes Acres	gold Acres
1910...	1,857,671	1,899,130	4,116,137	1,144,465	271,983	169,091	1,848,919	518,990
1911...	1,952,422	1,758,842	4,071,927	1,175,158	313,667	168,311	1,842,226	530,927
1912...	1,971,801	1,816,426	4,096,111	1,219,583	287,511	202,742	1,792,523	571,451
1913...	1,791,569	1,932,321	3,983,448	1,184,857	275,626	165,121	1,770,079	501,033
1914...	1,905,933	1,873,280	3,899,074	1,209,150	301,448	169,938	1,760,629	516,893
Ave.								
1910-14	1,895,880	1,856,000	4,033,340	1,186,643	290,047	175,041	1,802,875	527,859
1915...	2,335,091	1,524,316	4,182,296	1,214,458	273,016	130,307	1,625,589	499,804
1916...	2,053,568	1,653,376	4,171,353	1,155,404	242,803	113,474	1,623,161	461,823
1917...	2,105,929	1,797,227	4,789,010	1,377,311	210,899	103,294	1,676,888	482,942

	Cabbages, etc. Acres	Clover and Rotation Grasses Acres	Fallow Acres	Total Arable Acres	Permanent Grass Acres	Total Acr'ge under Crops & Grass Acres
1910.....	192,918	6,670,398	354,472	19,603,821	27,227,816	46,931,637
1911.....	198,077	6,759,582	329,814	19,686,722	27,239,778	46,926,500
1912.....	215,346	6,668,701	281,231	19,746,876	27,046,871	46,793,747
1913.....	189,045	6,643,146	396,472	19,431,716	27,309,188	46,740,904
1914.....	192,145	6,606,046	348,532	19,414,166	27,349,650	46,763,816
Ave.						
1910-14...	197,506	6,669,575	342,104	19,576,660	27,254,661	46,891,321
1915.....	184,584	6,462,279	316,870	19,346,593	27,328,814	46,675,404
1916.....	183,346	6,763,011	430,495	19,499,475	27,188,037	46,687,512
1917.....	152,195	6,037,483	361,925	19,748,414	26,588,378	46,336,792

¹ Compiled from Reports of the Board of Agriculture and Fisheries, Agricultural Statistics, Part 1, 1910-1916.

TABLE XIX
PRODUCTION OF THE UNITED KINGDOM

	Wheat Quarters	Barley Quarters	Oats Quarters	Potatoes Tons	Beans Quarters	Turnips & Swedes Tons	Mangold Tons	Hay Tons
1910	7,074,179	7,880,562	21,974,289	6,347,966	1,093,365	30,319,359	10,819,323	15,294,874
1911	8,039,182	7,225,402	20,366,667	7,520,168	967,692	21,670,131	9,214,981	11,656,471
1912	7,175,288	7,275,900	20,600,079	5,726,342	973,006	24,061,857	10,137,766	14,024,222
1913	7,087,050	8,204,066	20,660,279	7,604,804	950,309	25,313,818	9,276,129	15,395,088
1914	7,804,041	8,065,678	20,663,537	7,476,458	1,120,078	24,195,755	9,522,921	12,403,479
Ave.								
1910-14	7,471,884	7,804,041	20,663,537	7,476,458	1,120,078	24,195,755	9,522,921	12,403,479
1915	9,239,355	5,862,244	22,308,395	7,540,240	924,155	24,431,083	9,696,499	12,448,783
1916	7,471,884	6,612,550	21,333,782	5,468,881	892,572	23,318,170	9,009,752	15,197,872
1917	8,941,000	7,190,000	27,550,000	8,600,000	474,081	24,841,618	10,369,036	13,162,627

TABLE XX
LIVE STOCK OF THE UNITED KINGDOM
Returns Taken as of June 4

CATTLE				SHEEP		Pigs	
Horses	Cows and Heifers	Other Cattle	Total	Other Sheep	Total	Total	Pigs
1910	2,094,857	7,423,267	11,765,453	18,883,080	31,164,587	31,164,587	3,561,487
1911	2,033,216	7,458,311	11,866,111	18,480,163	30,479,807	30,479,807	4,250,013
1912	1,994,607	7,513,819	11,914,635	17,297,440	28,967,495	28,967,495	3,992,549
1913	1,874,264	7,618,643	11,936,600	16,571,781	27,629,206	27,629,206	3,305,771
1914	1,851,042	7,589,377	12,184,505	16,708,250	27,963,977	27,963,977	3,952,615
Ave.							
1910-14	1,969,597	7,520,683	11,933,461	17,588,143	29,241,014	29,241,014	3,812,487
1915	1,711,858	7,676,702	12,171,452	16,934,006	28,275,970	28,275,970	3,795,131
1916	1,834,215	7,952,219	12,451,540	17,245,751	28,849,655	28,849,655	3,615,891
1917	2,129,722	7,844,745	12,342,268	16,365,540	27,770,555	27,770,555	2,998,657

TABLE XXI

NUMBERS OF LIVE STOCK RETURNED AT THE VARIOUS MARKETS, 1912-1916 ¹

	Fat Cattle	Dairy Cows	Calves	Fat Sheep	Fat Pigs
1912	616,139	80,314	143,551	2,814,313	656,556
1913	650,525	99,834	151,708	3,113,932	571,399
1914	631,695	102,127	154,029	2,831,070	597,718
1915	651,293	103,319	136,364	2,749,409	641,588
1916	677,939	100,572	121,213	2,747,142	562,339

¹ Agricultural Returns of the Board of Agriculture and Fisheries, Part 3.

TABLE XXII

QUANTITY OF GRAIN REPORTED FROM ENGLAND AND WALES

	Wheat, Qrs.	Barley, Qrs.	Oats, Qrs.
1909	2,641,225	2,699,628	905,983
1910	3,072,523	3,205,203	791,121
1911	3,140,257	3,123,986	858,341
1912	2,365,596	2,165,572	630,755
1913	2,511,297	2,948,930	639,298
Ave. 1909-13.....	2,746,180	2,828,664	765,100
1914	3,027,976	3,403,072	1,164,361
1915	3,225,198	2,552,128	1,181,480
1916	3,600,391	2,182,218	1,129,096
1917	2,386,196	2,416,966	823,072

TABLE XXIV
IMPORTS OF THE UNITED KINGDOM
Sugar and Cotton, Quantities

	Sugar, Cwts.	Cotton (Raw), Cwts.
1909	35,190,134	19,542,513
1910	34,504,097	17,613,760
1911	37,966,204	22,070,881
1912	34,351,532	28,058,178
1913	39,385,190	21,742,996
Ave. 1909-13 .....	.....	.....
1914	39,860,809	18,641,333
1915	29,647,133	26,476,161
1916	30,667,171	21,710,122
1917 .....	.....	16,500,000

TABLE XXV
IMPORTS OF THE UNITED KINGDOM
Grains and Vegetable Products, Values ¹

	Wheat, lbs.	Barley, lbs.	Beans, lbs.	Peas, lbs.	Rice, lbs.
1909	51,642,611	7,143,849	757,600	603,054	2,849,057
1910	49,671,789	5,396,452	311,676	718,740	3,530,769
1911	44,186,859	8,266,145	375,333	1,012,862	2,917,410
1912	51,963,736	7,871,581	470,847	1,291,602	3,756,979
1913	50,196,944	8,077,100	568,189	1,006,735	3,208,733
Ave. 1909-13 .....	.....	.....	.....	.....	.....
1914	50,283,127	5,660,312	502,928	546,470	3,261,589
1915	65,617,352	6,029,866	534,139	872,407	6,725,760
1916	80,581,353	10,411,218	687,119	1,290,605	8,192,765

¹ Value of Imports computed from C. I. F. Prices.

TABLE XXVI
IMPORTS OF THE UNITED KINGDOM
Vegetables, Sugar, etc., Values

	Potatoes, lbs.	Onions, lbs.	Apples, lbs.	Sugar, lbs.	Cotton, lbs.
1909	1,407,875	1,213,518	2,007,911	21,691,894	60,295,049
1910	1,201,561	1,042,674	2,189,309	24,554,209	71,711,908
1911	1,302,448	1,222,211	2,232,992	26,586,839	71,155,514
1912	1,745,578	1,303,388	2,507,024	25,149,661	80,238,960
1913	2,589,038	1,035,053	2,230,370	23,066,621	70,570,547
Ave. 1909-13 .....	.....	.....	.....	.....	.....
1914	1,535,515	1,480,773	2,046,824	32,118,170	55,350,000
1915	1,187,846	1,789,547	2,323,249	31,812,160	64,671,653
1916	1,118,831	2,062,149	2,741,102	37,367,675	84,729,677
1917 .....	.....	.....	.....	.....	.....

TABLE XXVII
IMPORTS OF THE UNITED KINGDOM

	Animal Products						
	Beef, Cwts.	Mutton, Cwts.	Pork, Cwts.	Wool (Net) Lbs.	Butter, Cwts.	Margarine, Cwts.	Cheese, Cwts.
1909	6,583,559	4,886,867	6,441,475	418,014,905	4,062,812	868,292	2,390,090
1910	7,557,075	5,556,215	5,289,613	468,072,538	4,325,539	1,120,812	2,456,340
1911	8,089,107	5,474,614	6,513,030	495,370,311	4,302,692	944,405	2,348,326
1912	8,645,106	5,144,318	6,057,952	472,553,358	4,005,159	1,352,427	1,155,242
1913	9,901,082	5,416,513	6,447,746	499,593,167	4,139,028	1,518,297	1,221,686
Ave. 1909-13	.....	.....	.....	.....	.....	.....	1,252,236
1914	9,677,810	5,261,005	7,059,254	421,635,102	3,984,204	1,529,219	1,225,316
1915	10,440,455	4,767,389	8,380,030	811,505,193	3,853,855	2,052,183	1,577,522
1916	8,734,096	3,680,373	9,325,834	579,441,634	2,175,415	2,752,866	1,707,792
							2,604,124
							2,589,594
							2,290,206
							2,286,947
							2,201,296
							2,215,252
							Eggs, Thous.

TABLE XXVIII
IMPORTS, UNITED KINGDOM

Statement Showing Estimated Reduction in Imports During the Months, August-September, 1914, After Allowing for Changes in Prices Attributable to the War

	Actual Imports Corrected to Normal Peace Prices				"Expected" Imports (In Million Lbs.)				Excess (+) or Decrease (-) of Actual over "Expected" Imports			
	Aug.	Sept.	Oct.	Nov.	Dec.	Aug.	Sept.	Oct.	Nov.	Dec.	Aug.	Sept.
Food, Drink, etc.	19.4	19.1	23.2	25.5	27.5	24.0	25.2	26.8	25.3	25.9	-4.6	-6.1
Raw Materials	14.5	14.5	14.8	16.9	23.7	17.5	18.4	24.2	26.7	30.6	-3.0	-3.9
Manufactures	6.6	7.7	9.6	9.6	11.6	16.1	16.6	17.3	16.1	16.8	-9.5	-8.9
Miscellaneous	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	-0.1	-0.2
Total	41.1	42.1	49.1	53.8	64.3	57.9	60.9	68.5	68.8	73.5	-16.8	-18.8
											-19.4	-15.0
											-9.2	-9.2

This table shows a total deficiency in Normal Imports of about 80,000,000 pounds or 24 per cent divided as follows:—

1. Food, Drink and Tobacco, 10 per cent.
2. Raw Materials, 28 per cent.
3. Manufactures, 46 per cent.

TABLE XXIX
PRICES, ENGLAND AND WALES

Average Annual Price per Imperial Quarter of British Corn

	Wheat 480 lbs.		Barley 400 lbs.		Oats 312 lbs.	
	<i>s</i>	<i>d</i>	<i>s</i>	<i>d</i>	<i>s</i>	<i>d</i>
1909	36	11	26	10	18	11
1910	31	8	23	1	17	4
1911	31	8	27	3	18	10
1912	34	9	30	8	21	6
1913	31	8	27	3	19	1
Ave. 1909-1913.....	33	4	27	0	19	1
1914	34	11	27	2	20	11
1915	52	10	37	4	30	2
1916	58	5	53	6	33	5
1917	75	8	64	8	49	10
1918 ¹	72	3	60	4	56	9

¹ For September 7, 1918.

TABLE XXX
FRANCE,¹ GERMANY, AND ENGLAND COMPARED

	United Kingdom	Germany	France
Population	45,000,000	65,000,000	40,000,000
Population engaged in agriculture...	1,350,000	10,000,000	8,000,000
Total acreage under cultivation	48,000,000	86,000,000	67,000,000
Acreage under plow	20,000,000	65,000,000	47,000,000
Acres growing bread grain	1,790,000	20,000,000	19,500,000
Total bushels of bread grain produced	56,000,000	584,000,000	376,000,000
Head of cattle	11,000,000	20,000,000	14,000,000
Per cent of cultivated surface under grass	60%	20%	30%
Per cent of total cultivated area growing bread grain	3%	25%	30%
Production of bread grain per capita	90 lbs.	485 lbs.	500 lbs.
Per cent of population engaged in agriculture	3%	17%	20%

Increase or Decrease of Wheat Acreage During Past 30 Years

Germany	France	Great Britain
25% Increase	7% Increase	30% Decrease

Increase in Number of Cattle in 40 Years

Germany	From 15,000,000 to 20,000,000
France	From 11,000,000 to 14,000,000
United Kingdom	From 10,000,000 to 11,000,000

Pigs and Sheep During 40 Years

Germany	Has increased her stock of pigs from 7,000,000 to 22,000,000
France	Has increased her stock of pigs from 5,000,000 to 7,000,000
United Kingdom...	Same as 40 years ago
Germany.....	Number of sheep has fallen from 25,000,000 to 6,000,000
United Kingdom...	Same as 40 years ago

¹ See Collings, Jesse — *The Great War* — 1915.

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